

**UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION**

KEG KANALREINIGUNGSTECHNICK §
GmbH and KEG TECHNOLOGIES, §
INC. §

Plaintiffs, §

v. §

REINHART LAIMER, SEWER §
EQUIPMENT CORPORATION, USB- §
SEWER EQUIPMENT CORPORATION, §
ULRICH SIMPFENDÖRFER, USB- §
DUESEN, USB-SEWER EQUIPMENT §
INTERNATIONAL GmbH, PATRICK §
SAVIO, DANIEL LONG and ELKE §
KRANZ §

Defendants §

CIVIL ACTION NO.: 1:11-cv-1948-JEC

**SPECIAL MASTER'S REPORT AND RECOMMENDATION ON CLAIM
CONSTRUCTION**

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I. Introduction

A. Background

Plaintiffs KEG Kanalreinigungstechnik GmbH and KEG Technologies, Inc. (collectively “plaintiffs” or “KEG”), have sued defendants Reinhart Laimer, Sewer Equipment Corporation, USB-Sewer Equipment Corporation, Ulrich Simpfendörfer, USB-Duesen, USB-Sewer Equipment International GmbH,¹ Patrick Savio, Daniel Long and Elke Krantz (collectively “defendants” or “Laimer”) for infringement of U.S. Patent Nos. 5,992,432, and 6,089,243 (the ‘432 and ‘243 patents, respectively).

The ‘432 and ‘243 patents, in general, are drawn to “hydrodynamic nozzles” or “hydrodynamic tools” used to clean the inside surface of underground pipes. The nozzles/tools may be connected to a water-supply hose and inserted into a pipe. High-pressure water is pumped into the nozzles/tools. Channels in the nozzle/tool turn the water around to angled exits. The force of the water drives the nozzle/tool through the pipe while the water cleans debris from the inside of the pipe.

KEG explains that “[t]he inventors named on the patents-in-suit first filed patent applications for their inventions in Germany, and then later in the U.S. after their German applications were translated into English.” KEG’s Brief [Dkt. No. 64] at 2. Apparently as a result of those translations, some of the claim language is somewhat awkward. Laimer contends that a number of claim terms, phrases and clauses are “unintelligible” and render the claims indefinite and invalid under 35 U.S.C. § 112(2).

B. Referral to the Special Master

By Order dated May 14, 2012 [Doc. 81], the Court, pursuant to Rule 53, FEDERAL RULES OF CIVIL PROCEDURE, appointed the undersigned to serve as special master in this cause. The Order

¹ Defendant USB-Sewer Equipment International GmbH has joined in the Joint Claim Construction Statement and Defendants’ brief to the extent the Court has not yet ruled on its Motion to Dismiss.

directed the master to preside over the *Markman*² claim construction hearing, and submit a report and recommendation on claim construction to the Court.

Pursuant to that order, the master held a conference call hearing with the parties on June 6, 2012, to discuss the scheduling and format for a *Markman* hearing on claim construction. Accordingly, a Notice of Hearing was issued providing, *inter alia*, that a hearing would be held on August 22, 2012, continuing if necessary to August 23, 2012.

In accordance with the Court's referral and the Notice of Hearing, a hearing was held on August 22, 2012, in the courtroom of The Honorable Julie E. Carnes. Although the hearing was transcribed, none of the parties requested that a transcript be prepared.

C. The Parties' Submissions

The parties have filed or provided the following submissions setting out their respective proposed constructions and arguments:

Date Filed	Dkt. No.	Submission
Dec. 23, 2011	62	Joint Claim Construction Statement, including the parties' expert reports ("JCC Statement")
January 23, 2012	64	Plaintiffs' Opening Claim Construction Brief ("KEG's Brief")
January 23, 2012	65	Defendants' Opening Claim Construction Brief ("Laimer's Brief")
February 13, 2012	66	Plaintiffs' Response to Defendants' Opening Claim Construction Brief ("KEG's Response")
February 13, 2012	67	Defendants' Response to Defendants' Opening Claim Construction Brief ("Laimer's Response")
		Defendants' Claim Construction Slides
August 8, 2012		Plaintiffs' Memorandum in Support of Motion <i>in Limine</i> to Exclude Testimony of George Thomas, Esq. at the <i>Markman</i> Hearing on the Issues of Claim Construction and Validity

² *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996).

Date Filed	Dkt. No.	Submission
August 14, 2012		Defendants' Response to Plaintiffs' Motion in Limine to Exclude Testimony of George Thomas
August 9, 2012		Joint Claim Construction Chart ("JCC Chart")
August 20, 2012		Revised Joint Claim Construction Chart ("Revised JCC Chart")
September 7, 2012		Second Revised Joint Claim Construction Chart ("Second Revised JCC Chart")

The Notice of Hearing provided that the parties submit a "Joint Claim Construction Chart" (as distinguished from the Joint Claim Construction Statement) in advance of the hearing. The Chart was formatted into five columns: (1) the patent and claim number(s) where the disputed term(s) appear(s), (2) the claim language with disputed terms in bold type or underlined, (3) in the third and fourth columns, each party's proposed construction of each disputed term, with references to the parties' briefs where those terms are discussed, and (4) the fifth column entitled "Court's Construction" left blank. The purpose of the claim construction chart is to assist the master, the Court and the parties in tracking and resolving disputed terms.

After the hearing, the parties were requested to update the "Joint Claim Construction Chart" in light of the hearing. The post-hearing "Joint Claim Construction Chart" is the one dated September 7, 2012. It does not appear that the parties filed those charts with the Court.

D. Statutory Citations

On September 16, 2011, President Obama signed into law the America Invents Act (AIA), Pub. L. No. 112–29. Section 4, entitled "Inventor's Oath or Declaration," *inter alia*, added subsection designations to the paragraphs of 35 U.S.C. § 112. Sec. 4(e), "Effective Date," provides: "The amendments made by this section shall take effect upon the expiration of the 1-year period beginning on the date of the enactment of this Act and shall apply to any patent application that is filed on or after that effective date." Although § 112, as amended, is currently the form of that statute, those amendments, largely non-substantive, would not be applicable to the patents-in-suit.

Accordingly, the statutory citations herein – for § 112 and otherwise – are to the patent statute – 35 U.S.C. – prior to the AIA amendments. For example, § 112(1) refers to § 112, para. 1,

§ 112(2) refers to § 112, para. 2, and § 112(6) refers to § 112, para. 6 of 35 U.S.C. without the AIA amendments.

II. Claim Construction Principles

A. Overview

A patent is a fully integrated written instrument. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 978 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996). A patent, by statute, must provide a written description of the invention, a disclosure that would enable one of ordinary skill in the art to make and use the invention, and a disclosure of the best mode known to the inventor for practicing the invention. *See* 35 U.S.C. § 112(1).³ A patent must also contain claims “particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112(2).⁴ The claims of a patent provide the measure of a patentee’s right to exclude others from practicing the claimed invention. *See* 35 U.S.C. § 154.⁵

³ 35 U.S.C. § 112(1) provides:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

⁴ 35 U.S.C. § 112(2) provides:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

⁵ 35 U.S.C. § 154(a)(1) provides:

Every patent shall contain a short title of the invention and a grant to the patentee, his heirs or assigns, of the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States, and, if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States, or importing into the United States, products made by that process, referring to the specification for the particulars thereof.

B. The Claims

Primary claim construction principles are discussed and explained in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). Among those are that “[i]t is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’ ” *Id.* at 1312, quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004), and citing *Vitronics Corp. v. Conception, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). *See also Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (claim construction “begins and ends” with the actual words of the claims). “That principle has been recognized since at least 1836, when Congress first required that the specification include a portion in which the inventor ‘shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery.’ ” *Phillips*, 415 F.3d at 1312.

“[T]he words of a claim ‘are generally given their ordinary and customary meaning,’ ” and “the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application.” *Id.* at 1313. “That starting point is based on the well-settled understanding that inventors are typically persons skilled in the field of the invention and that patents are addressed to and intended to be read by others of skill in the pertinent art.” *Id.* at 1313. “Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.*

“In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Id.* at 1314. Thus, in some instances, “general purpose dictionaries may be helpful,” but, as the court explained, “[i]n many cases that give rise to litigation * * * determining the ordinary and customary meaning of the claim requires examination of terms that have a particular meaning in a field of art.” *Id.* at 1314; *see Mangosoft, Inc. v. Oracle Corp.*, 525 F.3d 1327, 1333 (Fed. Cir. 2008) (“when considered in the context of and not divorced from the intrinsic evidence, there is nothing improper about referencing [a] definition in correctly construing the claim.”). “Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees

frequently use terms idiosyncratically, the court looks to ‘those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.’ ” *Id.*, quoting *Innova/Pure Water*, 381 F.3d at 1116. “ ‘Those sources include ‘the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.’ ” *Phillips*, 415 F.3d at 1314.

Thus, the claim construction process begins with the language used in the claims because “[q]uite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Id.* “Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term. Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.” *Id.* (citation omitted).

“Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.” *Id.* That is referred to as “claim differentiation.” “For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” *Id.* at 1314-15.

C. The Specification

The specification nevertheless remains important in claim construction. “The claims, of course, do not stand alone. Rather, they are part of ‘a fully integrated written instrument,’ consisting principally of a specification that concludes with the claims. For that reason, claims ‘must be read in view of the specification, of which they are a part.’ * * * [T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’ ” *Id.* at 1315, quoting *Vitronics Corp. v. Conception, Inc.*, 90 F.3d at 1576, 1582.

In particular, “[c]onsistent with that general principle,” the cases recognize that (1) “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs,” and (2) “[i]n other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor. In that instance as well, the inventor has dictated the correct claim scope, and the inventor’s intention, as expressed in the specification, is regarded as dispositive.” *Id.* at 1316.

However, two claim construction principles are: (1) claims are read in light of the specification, but (2) limitations from the specification must not be read into the claims. The line between the two is not always clear. See *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186-87 (Fed. Cir. 1998) (“[T]here is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification.”). In *Phillips*, the Federal Circuit advised that the “line between construing terms and importing limitations can be discerned with reasonable certainty and predictability if the court’s focus remains on understanding how a person of ordinary skill in the art would understand the claim terms. For instance, although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments. In particular, we have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment. That is not just because section 112 of the Patent Act requires that the claims themselves set forth the limits of the patent grant, but also because persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments.” *Phillips*, 415 F.3d at 1323 (citations omitted).

The Federal Circuit also advised: “[t]o avoid importing limitations from the specification into the claims, it is important to keep in mind that the purposes of the specification are to teach and enable those of skill in the art to make and use the invention and to provide a best mode for doing so. One of the best ways to teach a person of ordinary skill in the art how to make and use the invention is to provide an example of how to practice the invention in a particular case. Much of the time, upon reading the specification in that context, it will become clear whether the patentee is setting out specific examples of the invention to accomplish those goals, or whether the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive. The manner in which the patentee uses a term within the specification and claims usually will make the distinction apparent.” *Id.* at 1323 (citations omitted).

Nevertheless, the Federal Circuit has acknowledged that, “[i]n the end, there will still remain some cases in which it will be hard to determine whether a person of skill in the art would understand the embodiments to define the outer limits of the claim term or merely to be exemplary in nature. While that task may present difficulties in some cases, we nonetheless believe that attempting to resolve that problem in the context of the particular patent is likely to capture the scope of the actual invention more accurately than either strictly limiting the scope of the claims to

the embodiments disclosed in the specification or divorcing the claim language from the specification.” *Id.* at 1323-24.

D. The Prosecution History

The words in the claim may also be interpreted in light of the prosecution history, if in evidence. *See Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1324 (Fed. Cir. 2002). “Like the specification, the prosecution history provides evidence of how the [United States Patent and Trademark Office (“PTO”)] and the inventor understood the patent. Furthermore, like the specification, the prosecution history was created by the patentee in attempting to explain and obtain the patent.” *Phillips*, 415 F.3d at 1317 (citations omitted).

“Yet because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Id.* “Nonetheless, the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Id.*

III. The Question of Indefiniteness

The statute provides that:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

35 U.S.C. § 112(2). As noted above, Laimer contends that a number of claim terms, phrases and clauses are “unintelligible” and render the claims indefinite and invalid under 35 U.S.C. § 112(2). Laimer also contends that “the question of whether a claim is sufficiently definite under 35 U.S.C. 112(2) is inexorably intertwined with claim construction and is therefore properly included in the Joint Claim Construction Chart under Defendants’ Proposed Construction,” citing *BJ Services Co. v. Halliburton Energy Services, Inc.*, 338 F.3d 1368, 1372 (Fed. Cir. 2003). Second Revised Joint Claim Construction Chart at 1-2.

The Federal Circuit in *BJ Services* advised that “[i]ndefiniteness is also a legal determination arising out of the court's performance of its duty construing the claims, * * * and is reviewed *de novo*.” 338 F.3d at 1372. The court nevertheless added that “[l]ike enablement, definiteness, too, is

amenable to resolution by the jury where the issues are factual in nature.” *Id.* Indeed, the indefiniteness issues there were “essentially factual” and the court reviewed the jury’s verdict to determine whether it was supported by substantial evidence.

The Federal Circuit has advised that “[a] claim is invalid as indefinite only where it is ‘not amenable to construction’ or is ‘insolubly ambiguous.’” *Deere & Co. v. Bush Hog, LLC*, ____ F.3d ____ (Fed. Cir. 2012). *See also, IGT v. Bally Gaming Int’l, Inc.*, 659 F.3d 1109, 1119 (Fed. Cir. 2011)(“A claim is definite if ‘one skilled in the art would understand the bounds of the claim when read in light of the specification.’ * * * A claim is only indefinite if it is ‘not amenable to construction or [is] insolubly ambiguous.’”).

If a claim is not amenable to construction, then the claim is indefinite under § 112(2) because if the claim is not amendable to any reasonable construction, one of ordinary skill in the art would not know what the claim means. On the other hand, a claim may be amenable to construction, and yet be invalid as indefinite under § 112(2), if the construction itself is “insolubly ambiguous.” In *Star Sci., Inc. v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364, 1373 (Fed. Cir. 2011), for example, the Federal Circuit advised that “a construed claim can be indefinite if the construction remains insolubly ambiguous, meaning it fails to provide sufficient clarity about the bounds of the claim to one skilled in the art.”⁶ The court added that “[a]bsolute clarity is not required to find a claim term definite. This court has held that a claim term may be definite even when discerning the meaning is a ‘formidable [task] and the conclusion may be one over which reasonable persons will disagree.’” *Id.* quoting *Source Search Techs., LLC v. LendingTree, LLC*, 588 F.3d 1063, 1076 (Fed. Cir. 2009), in turn citing *Exxon Research & Eng’g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001). “[A] patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement.” *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 424 F.3d 1374, 1384 (Fed. Cir. 2005) (quotation marks omitted).

⁶ That has long been the rule. In *Honeywell Int’l, Inc. v. United States*, 609 F.3d 1292, 1301-02 (Fed. Cir. 2010), for example, the Federal Circuit advised that “[e]ven if a claim term’s definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope,” quoting *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1251 (Fed. Cir. 2008).

Also, “[a] claim is not indefinite merely because parties disagree concerning its construction. An accused infringer must thus demonstrate by clear and convincing evidence that one of ordinary skill in the relevant art could not discern the boundaries of the claim based on the claim language, the specification, the prosecution history, and the knowledge in the relevant art.” *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 783 (Fed. Cir. 2010).

Overall, as the Federal Circuit expressed in *Exxon Research*, 265 F.3d at 1375, the standard applicable to finding a claim indefinite gives effect to the statutory presumption of validity under § 282: “[W]e have not held that a claim is indefinite merely because it poses a difficult issue of claim construction. We engage in claim construction every day, and cases frequently present close questions of claim construction on which expert witnesses, trial courts, and even the judges of this court may disagree. Under a broad concept of indefiniteness, all but the clearest claim construction issues could be regarded as giving rise to invalidating indefiniteness in the claims at issue. But we have not adopted that approach to the law of indefiniteness. We have not insisted that claims be plain on their face in order to avoid condemnation for indefiniteness; rather, what we have asked is that the claims be amenable to construction, however difficult that task may be. If a claim is insolubly ambiguous, and no narrowing construction can properly be adopted, we have held the claim indefinite. If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds. * * * By finding claims indefinite only if reasonable efforts at claim construction prove futile, we accord respect to the statutory presumption of patent validity, * * * and we protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal.”

Laimer urges that “the Court does have discretion to rule on the issue of claim language indefiniteness at the claim construction stage of litigation.” Laimer’s Response [Dkt. No. 67] at 2. Laimer nevertheless urges that the issue of indefiniteness here should be decided during claim construction.

The master, in resolving the parties’ disputes *vis-à-vis* claim construction below, has periodically addressed Laimer’s arguments on indefiniteness in the context of determining whether disputed terms, phrases and clauses were amenable to construction. However, the master has not

decided, and makes no recommendation to the Court, on the ultimate issue of whether the claims are invalid or not based on indefiniteness.

In the master's view, given the issues presented in this case, and that indefiniteness requires a clear and convincing quantum of proof, it is best to reserve the ultimate question of claim definiteness/validity for separate briefing and hearing.

In other words, although the master finds the claims amenable to construction, that does not necessarily mean that the claim passes muster under § 112(2). That is a question for another day.

IV. The Patents-in-Suit

A. Overview

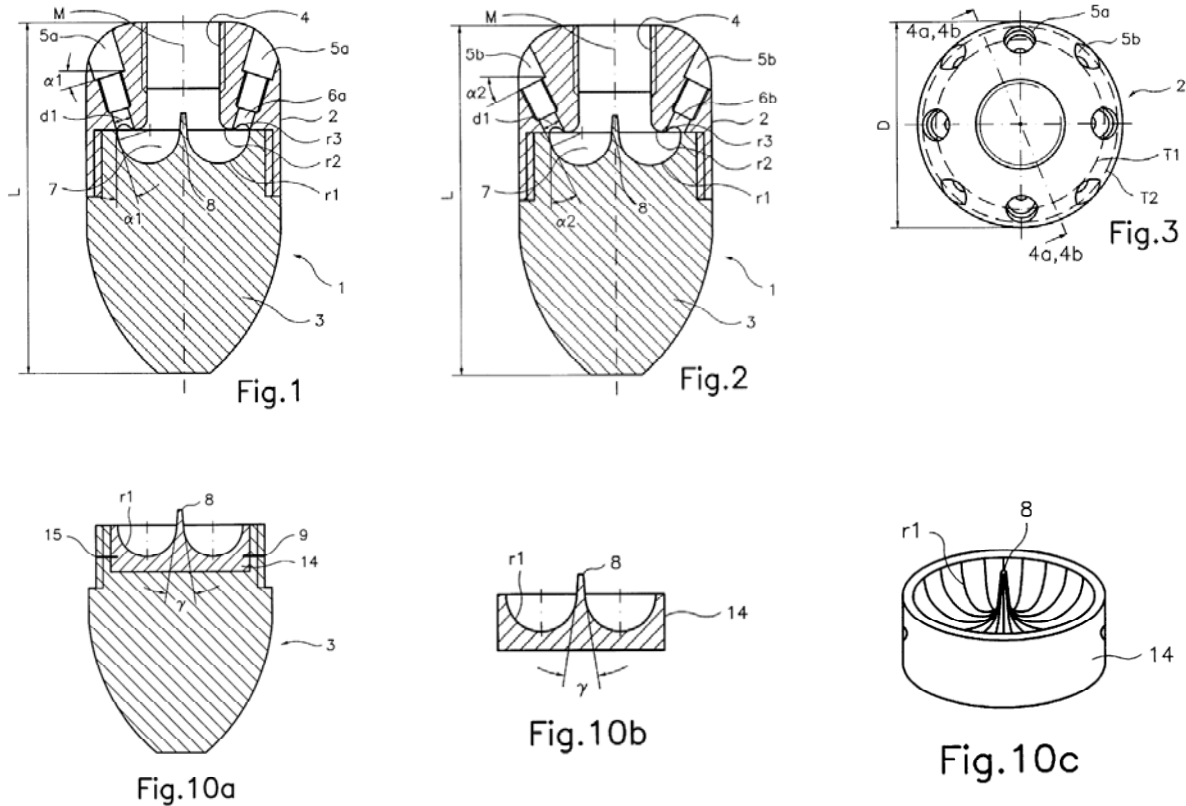
The following abbreviated general description of the patents-in-suit is intended solely as that, and should not be construed as adopting one party's or the other's views *vis-à-vis* claim construction.

The patents-in-suit name Kurt Hörger and Hans Lutze, both of Germany, as inventors. The '432 patent, entitled "Hydrodynamic Nozzle for Cleaning Pipes and Channels," issued on November 30, 1999, from an application filed on June 30, 1997. The '243 patent, entitled "Hydrodynamic Tool for Cleaning Pipes and Channels," issued on July 18, 2000, from an application filed on July 8, 1998.

The '432 patent indicates that it is a continuation-in-part of Application No. PCT/DE96/00825, filed on May 4, 1996. The patent indicates that foreign priority is claimed based on a German application, No. 195 16 780, filed on May 11, 1995. The '243 patent indicates that it is a continuation-in-part of Application No. PCT/DE96/02153, filed on November 8, 1996. Accordingly, although the patents are drawn to similar subject matter, the specifications and drawings share both similarities and dissimilarities.

B. Background

For present purposes, it is believed that an overall view of the '432 patent is sufficient to provide perspective for both patents-in-suit. The drawings of the '432 patent illustrate, *inter alia*, the following:



The abstract of the '432 patent explains:

A hydrodynamic nozzle for the cleaning of pipes and channels exhibits a distribution chamber (7), joining to the pressurized water-entrance opening (4), wherein the pressurized water-discharge opening (5a, 5b) join into the distribution chamber (7) through channels (6a and 6b). The distribution chamber (7) exhibits a cone-shaped water subdivider (8), to which a defined radius (r1) follows, wherein the curvature of the radius (r1) is opposite to that of the pressurized water-entrance opening (4). The channels (6a and 6b) are merging tangentially at this radius (r1). Furthermore, the nozzle body (1) can be subdivided into an upper part (2) and a lower part (3), and can exhibit a separate form element (14), which forms the water subdivider (8) and the radius (r1), in the lower part (3). The degree of effectiveness is substantially increased with the nozzle according to the invention and thus the axial pressure of the exiting beam of liquid and the cleaning effect is substantially increased.

**V.
Asserted Claims**

KEG asserts claim 18 of the '432 patent, and claims 1, 4, 10-16 and 18 of the '243 patent. Laimer's Brief [Dkt. No. 65] at 1.

**VI.
Agreed Constructions**

The parties have agreed to the following constructions, either initially in their briefing, or subsequently during or after the *Markman* hearing:

Patent	Claim	Claim Term	Agreed Construction
'432	18	"hydrodynamic nozzle"	a nozzle concerning or relating to incompressible fluid in motion
'243	1, 4, 10-19	"hydrodynamic tool"	a tool concerning or relating to incompressible fluid in motion
'432	18	"nozzle base body"	means the same as nozzle body
'432	18	"pressurized water-entrance opening"	the aperture where a hose, which can supply water under pressure, is attached
'243	1, 10, 12	"frame"	a structure that gives shape or support: the frame of a house
'243	1	a tool frame having a front side and having a rear side	a tool body or housing for the hydrodynamic tool; the front side is the portion of the body/housing in the direction of motion of the tool, and the rear side is the portion opposite the direction of motion of the tool
'243	10	the tool frame is	"casting" simply refers to the method of making the tool (i.e., using a cast, which is also known as a mold)
'243	12, 19	microcast	using a casting process whereby the surface finish of the as-cast product is in the micro-inch range that provides a smooth surface
'243	18	wherein the hydrodynamic tool is formed as a casting; wherein a stainless steel casting alloy is employed as a casting material of the tool	"casting" simply refers to the method of making the tool (i.e., using a cast, which is also known as a mold)
'432	18	pressurized water-entrance opening	the aperture where a hose, which can supply water under pressure, is attached
'432	18	pressurized water-entrance openings	pressurized water-entrance opening (the "s" is a typo)
'243	1, 13, 14	"pressurized water-entry inlet opening"	the aperture where a hose, which can supply water under pressure, is attached
'432	18	pressurized water-discharge openings	the aperture(s) where the fluid under pressure exits the device
'432	18	having pressurized water-discharge openings on a side of the pressurized water-	the aperture(s) where the fluid under pressure exits the device are disposed on the same general portion (side or end) on the nozzle body

Patent	Claim	Claim Term	Agreed Construction
		entrance opening	
'243	1	pressurized water-discharge outlet openings disposed at the rear side of the tool frame	the aperture(s) where the fluid under pressure exits the device
'243	13	a pressurized water-entry inlet opening and pressurized water-discharge outlet openings on a side of the water connection	the aperture(s) where the fluid under pressure exits the device are disposed on the same general portion (side or end) of the tool body as the water-entrance opening
'432	18	wherein a distribution chamber (7) follows to the pressurized water-entrance opening (4), into which the channels (6a and 6b), connected to the pressurized water-discharge openings (5a, 5b), are joining,	the pressurized water-entrance opening is connected to the distribution chamber, which is connected to the channels, which are connected to the pressurized water-outlet openings, and the channels join in the distribution chamber
'243	1	wherein the water guide channels, corresponding to the respective ones of the pressurized water-discharge outlet openings, are merging into the respective pressurized water-discharge outlet openings,	The water guide channels merge with corresponding ones of the outlet openings
'432	18	wherein a cone tip of the conical-shaped water subdivider (8) is directed in a direction of the pressurized water-entrance opening (4),	the apex of the conical-shaped water subdivider points toward the opening in the nozzle where a hose, which can supply water under pressure, is attached
'243	13	wherein the direction of curvature of the deflection radius (r) is opposite to the pressurized water-entry inlet opening (2),	the shape of the water guide channels is such that the direction of curvature goes from the surface to the center of curvature and this is opposite to the direction of inlet flow
'243	4	wherein the water guide channels narrow in their cross-section up to a cross-section in a connection region to the pressurized water-discharge outlet openings	Term should be given its ordinary meaning to one of ordinary skill in the art, i.e., the upstream cross-section diameter of the water guide channels is greater than the downstream cross-section diameter measured in the general region where the channels converge with their respective discharge nozzles
'243	15	wherein the water guide channels (3) narrow in their diameter (d_{w1}) up to a diameter (d_{w2}) in a connection region of the pressurized water-discharge outlet openings (4)	the water guide channels are decreasing in diameter from a diameter d_{w1} to a diameter d_{w2} (as measured in the connection region)
'243	15	the decrease of the diameter	The phrase should be given its ordinary meaning to one

Patent	Claim	Claim Term	Agreed Construction
		(d_{w1}) to the diameter (d_{w2}) ends in a region of the position of the deflection radius (r) disposed farthest in a direction of flow motion	of ordinary skill in the art, i.e., the water guide channels are decreasing in diameter from a diameter d_{w1} to a diameter d_{w2} up to the point where the deflection radius ends (i.e., merges with the discharge outlets of the linear region near the discharge openings)
'243	16	further comprising a hollow chamber with a closure possibility disposed in the tool;	This phrase should be given its ordinary meaning to one of ordinary skill in the art, i.e., there is an optional closure for the hollow chamber
'243	16	wherein the closure possibility comprises a borehole and a member selected of a group consisting of a recessable closure screw and a closure stopper	the opening being in the form of a hole that has one of two different closures, both of which would be recessed below the outermost edge of the opening
Second Revised Joint Claim Construction Chart			

Additionally, as discussed further below, the parties have now agreed that several more previously disputed terms/phrases/clauses do not require construction.

VII. Disputed Claim Terms

A. “disposed on same a like different part circles” – ‘432 Patent, Claim 18

1. Disputed Term in Context of the Claim

Claim 18 of the ‘432 patent calls for, with the disputed phrase emphasized:

18. A hydrodynamic nozzle for a cleaning of pipes and channels, formed of a nozzle base body having a connector for a water hose as a pressurized water-entrance opening, and having pressurized water-discharge openings on a side of the pressurized water-entrance opening disposed on same a like different part circles, wherein the pressurized water-discharge openings are connected through channels to the pressurized water-entrance openings, wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body, wherein

a distribution chamber (7) follows to the pressurized water-entrance opening (4), into which the channels (6a and 6b), connected to the pressurized water-discharge openings (5a, 5b), are joining, wherein a conical-shaped water subdivider (8) with a defined cone angle (γ) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body 1, wherein a cone tip of the conical-shaped water subdivider (8) is directed in a direction of the pressurized water-entrance opening (4),

a defined and substantially semi-circular first radius (r1) follows to a cone base of the water subdivider (8), where a curvature of first radius (r1) is directed substantially opposite to the pressurized water-entrance opening (4) and where the first radius (r1) forms the base of the distribution chamber (7),

and wherein each channel (6a, 6b), inclined at an angle (.alpha.1, .alpha.2) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1).

2. The Parties' Proposed Constructions

The parties' proposed the following contested constructions:

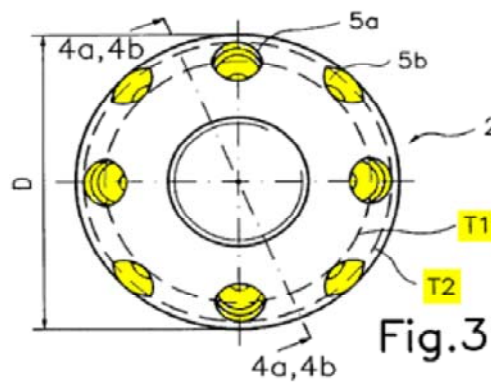
Patent	Claim Term	KEG	Laimer
'432 Claim 18	"disposed on same a like different part circles"	<p>"arranged in at least one circle around the water-entrance opening"</p> <p>Brief: p. 12</p> <p>The principal difference between the parties' proposed constructions is: the arrangement of the discharge openings relative to the entrance opening</p> <p>The Court's resolution of that difference is necessary because: Defendants' construction does not actually construe the claim term. The Plaintiffs' position is that the Court needs to determine whether "part circles" refers to actual circles on the nozzles, as Defendants' construction appears to suggest, or reference circles identifying where the discharge openings are located.</p>	<p>"disposed on a like or different part circles"</p> <p>Brief: pp. 18-20</p> <p>The principal difference between the parties' proposed construction is the arrangement of the discharge openings.</p> <p>The Court's resolution of that difference is necessary because the claim language is indefinite and therefore Defendants cannot determine what the patentee is entitled to exclude others from making, using, or selling.</p>
Second Revised Joint Claim Construction Chart at 3			

3. The Parties' Arguments

KEG urges that the awkward language appears to have resulted from an error in translation from German to English, but that the meaning is evident when read in the context of the claim and specification through the eyes of one of ordinary skill in the art. KEG's Brief [Dkt. No. 64] at 13, citing to a deposition of KEG's technical expert, Charles A. Garriss, Jr.

Laimer, on the other hand, contends that the phrase renders the claim invalid under 35 U.S.C. § 112(2). Laimer contends that the original claim called for "disposed on the same or different part circles" and was changed in an examiner's amendment to "disposed on same a like different part circles." Laimer's Brief [Dkt. No. 65] at 19.

KEG urges that the phrase describes the "location of the discharge nozzles (5a, 5b in FIG. 3) relative to the entire nozzle, i.e., the discharge openings are disposed on the same general portion (side or end) of the nozzle body and arranged in at least one circle around the water-entrance opening or in two different circles." KEG's Brief [Dkt. No. 64] at 12. KEG illustrates that with highlights in Ex. C to its brief:



KEG also urges that "Table 1 in the specification provides five proposed embodiments of the invention, each with at least six pressurized water-discharge openings, which clearly suggests that the nozzles are distributed in an axi-symmetric manner around the axis of the nozzle," citing to col. 10, line 1.

Laimer, on the other hand, in its brief urges that "if construction of the phrase is required, Defendants' proposed construction is: There are some circles but their location is unknown, and the circles are 'same a like different part circles.'" Laimer's Brief [Dkt. No. 65] at 18. Although in the

Second Revised Joint Claim Construction Chart above, Laimer proposes the construction “disposed on a like or different part circles.”

Laimer also urges that “despite that Figure 3 shows the water-discharge openings arranged around the water-entrance opening in a circular fashion, it does not indicate the meaning of ‘disposed on same a like different part circles.’” Laimer’s Brief [Dkt. No. 65] at 20.

Laimer lastly urges that Table 1, *inter alia*, is “silent as to the meaning of this unintelligible phrase.” *Id.*

4. Discussion

a) Context of the Claim Language

In *Phillips*, 415 F.3d at 1314, the Federal Circuit advised that “[q]uite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms. * * *To begin with, the context in which a term is used in the asserted claim can be highly instructive.” (paragraphing omitted)

The disputed phrase appears in the beginning portion of the claim and is then modified in the first limitation of the claim body:

18. A hydrodynamic nozzle for a cleaning of pipes and channels, formed of a nozzle base body having a connector for a water hose as a pressurized water-entrance opening, and having pressurized water-discharge openings on a side of the pressurized water-entrance opening disposed on same a like different part circles, wherein the pressurized water-discharge openings are connected through channels to the pressurized water-entrance openings, wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body, wherein

a distribution chamber (7) follows to the pressurized water-entrance opening (4), into which the channels (6a and 6b), connected to the pressurized water-discharge openings (5a, 5b), are joining, wherein a conical-shaped water subdivider (8) with a defined cone angle (γ) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body 1, wherein a cone tip of the conical-shaped water subdivider (8) is directed in a direction of the pressurized water-entrance opening (4), * * *

Namely, the initial portion of the claim calls for “[a] hydrodynamic nozzle” that is “formed of a nozzle base body having a connector for a water hose as a pressurized water-entrance opening” and has “pressurized water-discharge openings on a side of the pressurized water-entrance opening.”

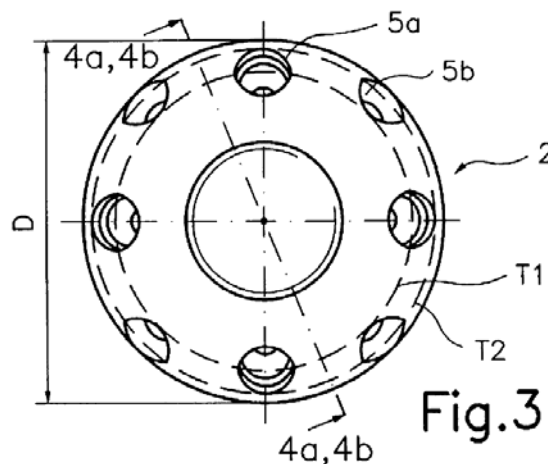
The claim then says that those “pressurized water-discharge openings” are “disposed on same a like different part circles,” and adds that “wherein the pressurized water-discharge openings are connected through channels to the pressurized water-entrance openings, wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body, * * *.”

The claim then says that “a distribution chamber (7) follows to the pressurized water-entrance opening (4), into which the channels (6a and 6b), connected to the pressurized water-discharge openings (5a, 5b), * * *.” The reference numerals in the claim leave no doubt that the “pressurized water-discharge openings” are those labeled 5a, 5b, for example as illustrated in Fig. 3 above, on dotted lines T1 and T2.

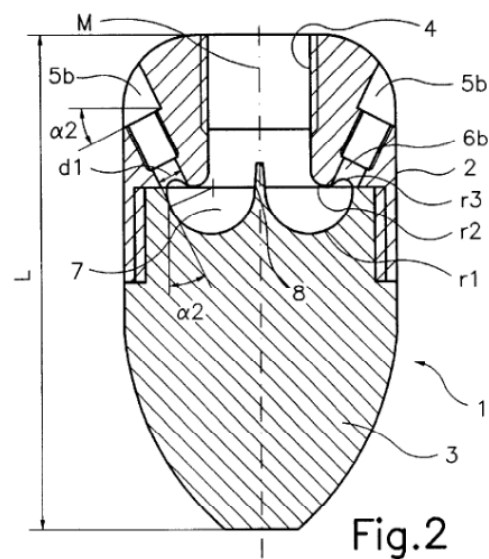
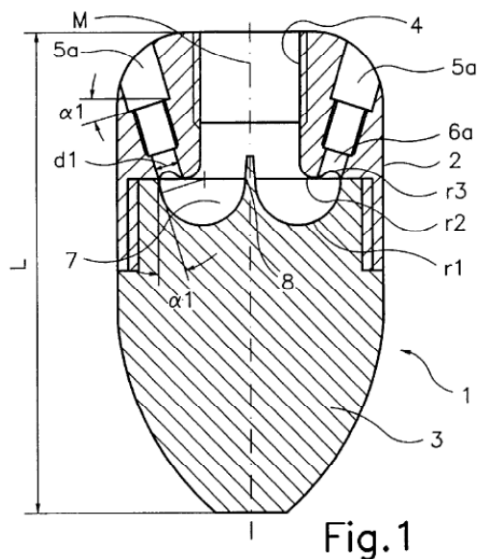
That lends support for KEG’s proposed construction of “arranged in at least one circle around the water-entrance opening.”

b) The Specification

The specification adds further support. For example, the abstract similarly explains that “the pressurized water-discharge opening (5a, 5b) join into the distribution chamber (7) through channels (6a and 6b).” The specification further explains that “pressurized water-discharge openings 5a and 5b are furnished at an angle of 45° and disposed alternately on differing reference circles T1 and T2. The angle of 45° is measured around the longitudinal axis and between the angular positions of centers of neighboring water-discharge openings.” ‘432 patent, col. 7, lines 66-67-col. 8, lines 1-4.



The specification also explains that “the pressurized water-discharge openings 5a, which are disposed on the inner reference circle T1, exhibit a smaller beam position angle α as compared to the pressurized water-discharge openings 5b on the outer reference circle T2. In other words, the axial direction of the pressurized water-discharge openings 5a, which are disposed on the inner reference circle T1, exhibit a smaller beam deflection angle α relative to the longitudinal axis of the nozzle 1 as compared to the direction of the pressurized water-discharge openings 5b on the outer reference circle T2 having a larger beam deflection angle α relative to the longitudinal axis of the nozzle 1.” ‘432 patent, col. 8, lines 20-31.



The specification further explains that “[t]he number of the pressurized water-discharge openings 5 (or, respectively, 5a and 5b) is determined according to the desired planned profile, wherein the beam position angle α of the pressurized water-discharge openings can also be equal for all water-discharge openings such that they are disposed on a common reference circle T. Usually six or more pressurized water-discharge openings are selected.” ‘432 patent, col. 12, lines 10-16.

Also, as KEG urges, Table 1 illustrates “exemplified embodiments for a number of five nozzle bodies 1 having a specific length L and a specific diameter D as well as a corresponding number of pressurized water-discharge openings 5a, 5b. The pressurized water-discharge openings 5a, 5b are disposed at the angle $\alpha 1$, $\alpha 2$, which indicate the radii r1, r2, and r3:” ‘432 patent, col. 9, lines 65-67.

TABLE 1

Length L (mm)	Dia- meter D (mm)	Number of Pressurized Water- Discharge Openings	Angles $\alpha 1$ and $\alpha 2$ (mm)	r1 Radius (mm)	r2 Radius (mm)	r3 Radius (mm)
280	120	12	15° and 25°	15.5	3.5	4.0
180	98	10	15° and 25°	15.5	6.5	5.0
110	65	8	8.5° and 12°	10	4.2	2.5
95	68	8	8° and 12°	7.8	2.0	2.5
40	40	6	only one angle $\alpha = 12^\circ$	6.3	2	1.7

As noted above, Laimer urges that Table 1 is “silent as to the meaning of this unintelligible phrase.” But when read in conjunction with the remainder of the specification, it is clear that the pressurized water discharge openings are disposed “in at least one circle around the water-entrance opening.”

Thus, the specification likewise supports KEG’s proposed construction, *i.e.*, the pressurized water-discharge openings are “arranged in at least one circle around the water-entrance opening.”

Laimer’s proposed construction in the Second Revised Joint Claim Construction Chart, “disposed on a like or different part circles,” seems to acknowledge that construction as well.

The claim language, while awkward, is not “insolubly ambiguous,” especially when viewed in conjunction with the specification and drawings. KEG’s proposed construction is consistent with the claim language, as well as the specification and drawings, and is not itself ambiguous.

5. Recommendation

The master recommends that the Court construe “disposed on same a like different part circles” in claim 18 in the ‘432 patent to mean “arranged in at least one circle around the water-entrance opening.”

B. “wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body” – ‘432 Patent, Claim 18

1. Disputed Term in Context of the Claim

Once again, claim 18 of the ‘432 patent calls for, with the disputed phrase emphasized:

18. A hydrodynamic nozzle for a cleaning of pipes and channels, formed of a nozzle base body having a connector for a water hose as a pressurized water-entrance opening, and having pressurized water-discharge openings on a side of the pressurized water-entrance opening disposed on same a like different part circles, wherein the pressurized water-discharge openings are connected through channels to the pressurized water-entrance openings, wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body, wherein

a distribution chamber (7) follows to the pressurized water-entrance opening (4), into which the channels (6a and 6b), connected to the pressurized water-discharge openings (5a, 5b), are joining, wherein a conical-shaped water subdivider (8) with a defined cone angle (γ) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body 1, wherein a cone tip of the conical-shaped water subdivider (8) is directed in a direction of the pressurized water-entrance opening (4),

a defined and substantially semi-circular first radius (r1) follows to a cone base of the water subdivider (8), where a curvature of first radius (r1) is directed substantially opposite to the pressurized water-entrance opening (4) and where the first radius (r1) forms the base of the distribution chamber (7),

and wherein each channel (6a, 6b), inclined at an angle (α_1, α_2) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1).

2. The Parties Proposed Constructions

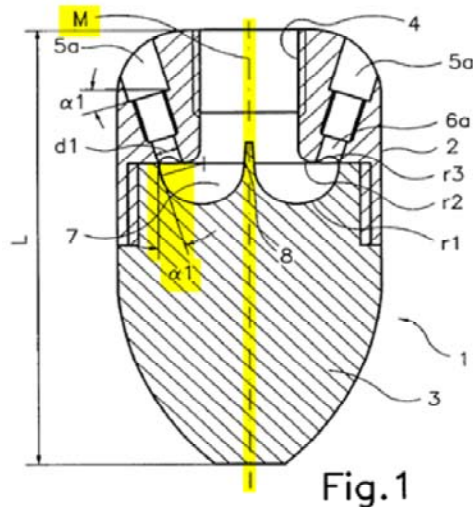
The parties’ proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
‘432, claim 18	wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body	“the direction of the axis of the aperture(s) where the fluid under pressure exits the nozzle and the direction of the axis of the channels are inclined at a pre-determined angle relative to the center axis of the nozzle body”	The claim is indefinite. In the alternative: the water-discharge openings and channels are arranged at an angle with a specified dimension relative to an axis of the nozzle body. Brief: pp. 21-23

Patent	Claim Term	KEG	Laimer
		<p>Brief: p. 17</p> <p>The principal difference between the parties' proposed constructions is: whether the angle has to be defined, and an identification of what reference line to use to define the inclined angles</p> <p>The Court's resolution of that difference is necessary because: Defendants' construction introduces ambiguity because it recites a "specific dimension" without identifying a value, and does not recognize what the "axis" refers to. The Plaintiffs' position is that the Court needs to determine whether this claim term requires a specific angle value or not, and what is the "axis of the nozzle body", so the fact finder can compare the Accused Instrumentalities to the claim language.</p>	<p>The principal difference between the parties' proposed construction is the angles at which the discharge openings are directed and the reference line at which to measure the angles.</p> <p>The Court's resolution of that difference is necessary because the claim language is indefinite and therefore Defendants cannot determine what the patentee is entitled to exclude others from making, using, or selling.</p>
Second Revised Joint Claim Construction Chart at 4-5			

3. The Parties' Arguments

KEG urges that the disputed phrase means that the direction of the axis of the discharge openings and the direction of the axis of the water channels (also referred to as water guide channels) are inclined at an angle relative to the center axis of the nozzle body, as marked in yellow on Exhibit C-3 to KEG's Brief. KEG's Brief [Dkt. No. 64] at 17:



KEG also notes that Figs. 1, 2, 4a, 4b, 5, 8, 10c, and 11a-c “all illustrate the shape and relationship between the recited components, making it clear that water enters the nozzle body through the pressurized water-entrance opening (reference number 4), is deflected by a subdivider (reference 8) into corresponding pressurized water discharge openings (reference 5a or 5b),” and that “the figures illustrate that each water guide channel (references 6a and 6b) is angled to facilitate the fluid transfer from the subdivider to the water-discharge openings (FIGS. 1 and 2, reference 5a and 5b respectively), where the fluid under pressure exits the nozzle on the same general side or end from which it entered. The specification references the axis as ‘M’ when referring to the figures.” KEG’s Brief [Dkt. No. 64] at 17. KEG also notes that Table 1 discloses exemplary angles for $\alpha 1$ and $\alpha 2$. *Id.*

Laimer, in his brief, contended that the disputed phrase/clause rendered the claim invalid under § 112(2) as being indefinite. However, Laimer urged that “if construction of the phrase is required, Defendants’ proposed construction is: All of the water-discharge openings and channels are at the same but unknown angle relative to some unknown axis of the nozzle body.” Laimer’s Brief [Dkt. No. 65] at 21.

However, in the Second Revised Joint Claim Construction Chart, Laimer urges that the disputed phrase should be construed to mean that “the water-discharge openings and channels are arranged at an angle with a specified dimension relative to an axis of the nozzle body.”

Laimer contends that the claim says that the “defined angle” is relative “to an axis of the angle body [*sic*]” but does not indicate which axis. *Id.* at 22. Laimer contends that the specification

does not support KEG's proposed construction because at col. 6, lines 23-24, the specification uses the same words as in the claim.

Laimer also contends that none of the drawing figures aid in construction because none provide any dimensions for "defined angle" or what defines the angle. Laimer further contends that none of the drawing figures "definitely" show that the channels are inclined relative to the central axis of the nozzle body. Laimer says that although col. 3, line 50 of the specification refers to a center axis of the nozzle base body, it does not do so in the context of the angles at which the channels are positioned. Laimer says that col. 6, line 65 of the specification is "almost identical" to col. 3, line 50, and offers no support in choosing the correct axis. *Id.* at 22-23.

4. Discussion

With respect to the parties' proposed constructions from the Second Revised Joint Claim Construction Chart:

KEG	Laimer
"the direction of the axis of the aperture(s) where the fluid under pressure exits the nozzle and the direction of the axis of the channels are inclined at a pre-determined angle relative to the center axis of the nozzle body"	"the water-discharge openings and channels are arranged at an angle with a specified dimension relative to an axis of the nozzle body."

KEG says that "[t]he principal difference between the parties' proposed constructions is: whether the angle has to be defined, and an identification of what reference line to use to define the inclined angles." Laimer similarly says "[t]he principal difference between the parties' proposed construction is the angles at which the discharge openings are directed and the reference line at which to measure the angles." Second Revised Joint Claim Construction Chart at 4-5.

KEG urges that "the Court needs to determine whether this claim term requires a specific angle value or not, and what is the 'axis of the nozzle body' * * *." Laimer says that the Court must resolve the parties' differences "because the claim language is indefinite and therefore Defendants cannot determine what the patentee is entitled to exclude others from making, using, or selling." Second Revised Joint Claim Construction Chart at 4-5.

a) The Claim Language

Beginning with the claim language:

18. A hydrodynamic nozzle for a cleaning of pipes and channels, formed of a nozzle base body having a connector for a water hose as a pressurized water-entrance opening, and having pressurized water-discharge openings on a side of the pressurized water-entrance opening disposed on same a like different part circles, wherein the pressurized water-discharge openings are connected through channels to the pressurized water-entrance openings, wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body, wherein

* * *

and wherein each channel (6a, 6b), inclined at an angle (α_1 , α_2) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1).

and addressing the question of the “angles” first, it appears that Laimer is contending that the claim must specify “an angle with a specified dimension” or the claim is invalid as being indefinite.

In the JCC Statement, for example, Laimer contended:

This language is unintelligible. The following is not understood: “an axis” does not have an antecedent in the claim. It is not clear what the axis is, such as a longitudinal axis of the cone or the axis of any of the first, second or third torus or the axis of r1 or r2. The expression “defined angle” is not understood. There is no dimension to the angle or what defines the angle. The term “nozzle body” has no antecedent.

The clause is not in conformance with 35 USC 112(2) and the claim is invalid. If required, the proposed construction is all of the water-discharge openings and channels are at the same but unknown angle relative to some unknown axis of the nozzle body. (emphasis added)

JCC Statement [Dkt. No. 62] at 9-10. However, as noted above, “a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement.” *Invitrogen*, 424 F.3d at 1384 (quotation marks omitted).

The claim refers to a “defined angle” which KEG construes as a “pre-determined angle.” In all events, it is clear from the second recitation in the claim that “angle” refers to angles α_1 and α_2 .

Moreover, the Federal Circuit advised in *Phillips*, 415 F.3d at 1314, that “[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to

the meaning of a claim term. Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.” (citation omitted).

Here, for example, claim 1 calls for “the pressurized water-discharge openings of the first set of pressurized water-discharge openings and the channels of the first set of channels are disposed inclined at a defined angle (α_1) relative to the axis of the nozzle base body” and claim 2 calls for “the pressurized water-discharge openings of the second set of pressurized water-discharge openings and the channels of the second set of channels are disposed inclined at a second defined angle (α_2) relative to the axis of the nozzle base body.”

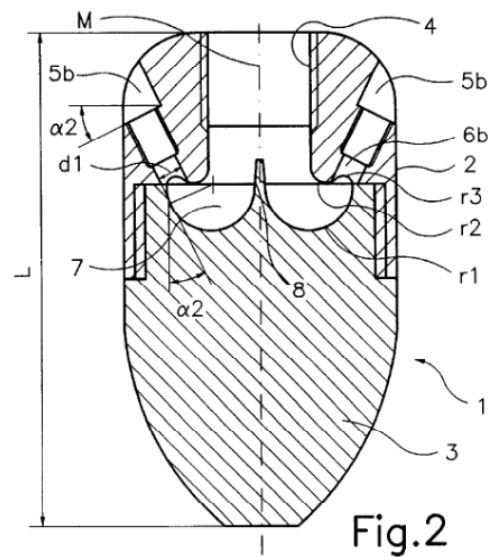
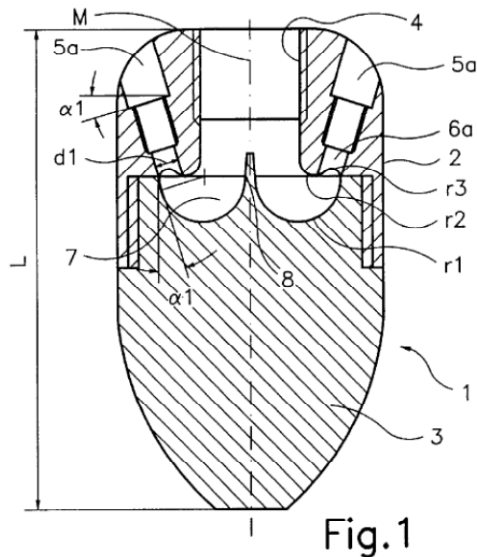
Similarly, although claim 18 in the disputed phrase refers to “an axis of the nozzle body,” it is clear that angles α_1 and α_2 , as disclosed, are relative to the axis of the nozzle body.

b) The Specification

The specification is in accord. The specification, under “Field of the Invention,” explains “the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to the axis of the nozzle body.” 432 patent, col. 1, lines 26-28. The specification is replete with similar descriptions: “The pressurized water-discharge openings of the first set of pressurized water-discharge openings and the channels of the first set of channels are disposed inclined at a defined angle α_1 relative to the axis of the nozzle base body,” 432 patent, col. 2, lines 38-44, “The pressurized water-discharge openings of the second set of pressurized water-discharge openings and the channels of the second set of channels can be disposed inclined at a second defined angle α_2 relative to the axis of the nozzle base body,” 432 patent, col. 3, lines 10-14, “The channels are inclined at a defined angle relative to the axis of the nozzle body,” 432 patent, 4, lines 18-19, and “The pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to the axis of the nozzle body,” 432 patent, col. 6, lines 22-24.

Axis M, illustrated in the drawings, is described in the specification as “axis M of the nozzle base body,” 432 patent, col. 3, line 51, “axis M of the nozzle body 1,” 432 patent, col. 9, lines 22-23, and the specification explains that “[t]he inclination angle relative to the axis M of the nozzle body 1 corresponds in the case of the channels 6a, connected to the discharge openings 5a, to an angle α_1 , and in the case of the channels 6b, connected to the discharge openings 5b, to an angle α_2 .” 432 patent, col. 9, lines 22-26.

Furthermore, contrary to Laimer's argument, the drawing figures clearly illustrate angles α_1 and α_2 inclined relative to axis M, for example as illustrated in Figs. 1 and 2:



5. Recommendation

The master recommends that the Court construe “wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body” in claim 18 of the ‘432 patent to mean “the direction of the axis of the aperture(s) where the fluid under pressure exits the nozzle and the direction of the axis of the channels are inclined at a pre-determined angle relative to the center axis of the nozzle body.”

- C. “wherein a conical-shaped water subdivider (8) with a defined cone angle (γ) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body (1)” – ‘432 Patent, Claim 18**

1. Disputed Term in Context of the Claim

Again, claim 18 of the ‘432 patent calls for, with the disputed phrase emphasized:

18. A hydrodynamic nozzle for a cleaning of pipes and channels, formed of a nozzle base body having a connector for a water hose as a pressurized water-entrance opening, and having pressurized water-discharge openings on a side of the pressurized water-entrance opening disposed on same a like different part circles, wherein the pressurized water-discharge openings are connected through channels to the

pressurized water-entrance openings, wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body, wherein

a distribution chamber (7) follows to the pressurized water-entrance opening (4), into which the channels (6a and 6b), connected to the pressurized water-discharge openings (5a, 5b), are joining, wherein a conical-shaped water subdivider (8) with a defined cone angle (γ) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body 1, wherein a cone tip of the conical-shaped water subdivider (8) is directed in a direction of the pressurized water-entrance opening (4),

a defined and substantially semi-circular first radius (r_1) follows to a cone base of the water subdivider (8), where a curvature of first radius (r_1) is directed substantially opposite to the pressurized water-entrance opening (4) and where the first radius (r_1) forms the base of the distribution chamber (7),

and wherein each channel (6a, 6b), inclined at an angle (α_1 , α_2) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r_1) or, respectively, merges continuously into the first radius (r_1).

2. The Parties Proposed Constructions

The parties' proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
'432, claim 18	wherein a conical-shaped water subdivider (8) with a defined cone angle (γ) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body (1),	<p>"a conical-shaped projection having a pre-determined cone angle, and extending upward (or upstream) along the center longitudinal axis of the nozzle body from the base of the distribution chamber, the apex of which is opposite (or downstream) the pressurized water-entrance opening"</p> <p>Brief: p. 20</p> <p>The principal difference between the parties' proposed constructions is: whether the water subdivider has a specific angle or not.</p> <p>The Court's resolution of that difference is necessary</p>	<p>The claim is indefinite. In the alternative: a conical-shaped water subdivider, with a cone angle of a specified dimension extending upward (or upstream) along the center longitudinal axis of the nozzle body from the base of the distribution chamber, the apex of which is opposite (or downstream) the pressurized water-entrance opening.</p> <p>Brief: pp. 26-28</p> <p>The principal difference between the parties' proposed construction is the angle of the conical-shaped water subdivider.</p> <p>The Court's resolution of that difference is necessary because the</p>

Patent	Claim Term	KEG	Laimer
		because: Defendants' construction introduces ambiguity because it recites a "specific dimension" without identifying a value. The Plaintiffs' position is that the Court needs to determine whether this claim term requires a specific angle value or not, so the fact finder can compare the Accused Instrumentalities to the claim language.	claim language is indefinite and therefore Defendants cannot determine what the patentee is entitled to exclude others from making, using, or selling
Second Revised Joint Claim Construction Chart at 5-6			

3. The Parties' Arguments

Laimer originally contended:

This language is unintelligible. The following is not understood: "a base", "defined cone angle", "the axis of the nozzle body", and "disposed a base". The clause is not in conformance with 35 USC 112(2) and the claim is invalid.

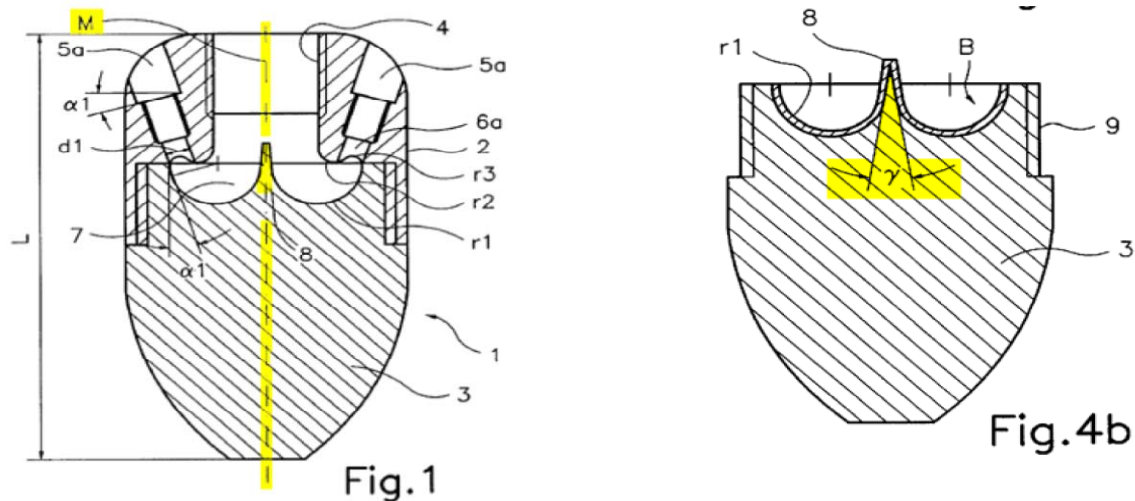
If required, the proposed construction is the water subdivider is conical and has a cone angle (γ) (but with no particular angle) that is disposed "a base" of the distribution chamber, opposite to the water entrance opening and centered relative to some undefined axis of the nozzle body.

JCC Statement [Dkt. No. 62] at 11-12.

In the Second Revised Joint Claim Construction Chart," Laimer's proposed construction includes "a cone angle of a specified dimension" while KEG's proposed construction refers to "a pre-determined cone angle." The parties agree that is the principal difference between the proposed constructions – KEG: "The principal difference between the parties' proposed constructions is: whether the water subdivider has a specific angle or not," Laimer: "The principal difference between the parties' proposed construction is the angle of the conical-shaped water subdivider."

KEG urges that the disputed phrase "means that a conical-shaped projection extending upward (or upstream) along the center axis of the nozzle body from the base of the distribution chamber has an apex opposite (or downstream) of the pressurized water-entrance opening. FIGS. 1 and 2 clearly illustrate the subdivider (reference 8) protruding toward the water-entrance opening

(reference 4)” KEG’s Brief [Dkt. No. 64] at 21. KEG includes the following highlighted drawing figure in Ex. C-5:



KEG urges that “[t]hus, ‘disposed oppositely’ to the entrance opening simply means that the subdivider is downstream from the opening with its conical tip extending upstream from the subdivider toward the entrance opening. The subdivider narrows as it protrudes, making an interpretation of the term ‘cone tip’ easily decipherable to a person of ordinary skill in the art as a conical-shaped projection. * * * Moreover, FIGS. 1, 2, 4b, and 10a-c illustrate the water subdivider (reference 8) protruding upstream toward the water-entrance opening, with its base downstream from its protruding tip.” KEG’s Brief [Dkt. No. 64] at 21.

Laimer originally argued that “axis of the nozzle body” was “not sufficient [to avoid indefiniteness] because no specific axis of the ‘nozzle body’ is indicated.” Laimer’s Brief [Dkt. No. 65] at 27. Laimer also urged that “disposed a base of the distribution chamber (7)” was “insufficient to accurately describe the positioning of the water subdivider * * *,” the “claim language merely provides that the subdivider is ‘disposed a base of the distribution chamber’ without also indicating the exact placement of the water subdivider along the base of the distribution chamber.” *Id.* In light of Laimer’s proposed construction and comments in the Second Revised Joint Claim Construction Chart, it appears that Laimer is no longer urging those arguments.

Laimer also urged that the drawing figures KEG pointed to as illustrating a “conical-shaped water subdivider” did not “specify the dimensions of the cone angle and do not otherwise define

this cone angle. Therefore, the claim does not particularly point out and distinctly claim the invention as required by the language of Section 112, ¶ 2 * * *.” *Id* at 27-28.

4. Discussion

Apart from Laimer’s contentions *vis-à-vis* indefiniteness, the parties’ proposed constructions:

KEG	Laimer
“a conical-shaped projection having a pre-determined cone angle, and extending upward (or upstream) along the center longitudinal axis of the nozzle body from the base of the distribution chamber, the apex of which is opposite (or downstream) the pressurized water-entrance opening”	“a conical-shaped water subdivider, with a cone angle of a specified dimension extending upward (or upstream) along the center longitudinal axis of the nozzle body from the base of the distribution chamber, the apex of which is opposite (or downstream) the pressurized water-entrance opening.
Second Revised Joint Claim Construction Chart at 5-6	

are similar, except that, as noted above, Laimer’s construction calls for “a cone angle of a specified dimension” while KEG calls for “a pre-determined cone angle.” KEG urges in the Second Revised Joint Claim Construction Chart that “the Court needs to determine whether this claim term requires a specific angle value or not, * * *.”

As noted above, “a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement.” *Invitrogen*, 424 F.3d at 1384 (quotation marks omitted).

In terms of claim construction, the claim language “wherein a conical-shaped water subdivider (8) with a defined cone angle (γ) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body 1” clearly does not require “a cone angle of a specified dimension.” Thus, in answer to KEG’s question “whether this claim term requires a specific angle value or not,” the answer is clearly No.

Moreover, the specification clearly explains that “[t]he water subdivider can exhibit a conical shape and can have a defined cone angle γ ,” 432 patent, col. 3, lines 19-20, “[a] conical-shaped water subdivider 8 with a defined cone angle γ is disposed at the base of the distribution chamber 7, disposed oppositely to the pressurized water-entrance opening 4, and centered relative to the axis of the nozzle body 1,” 432 patent, col. 6, lines 28-32, and claim 2 calls for “wherein the water subdivider exhibits a conical shape and has a defined cone angle (γ).” As illustrated in

the drawing figures, for example Fig. 4b, the angle γ (gamma) is clearly in relation to the center longitudinal axis of the nozzle body, as Laimer notes in the proposed construction in the Second Revised Joint Claim Construction Chart.

5. Recommendation

The master recommends that the Court construe “wherein a conical-shaped water subdivider (8) with a defined cone angle (gamma) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body (1)” in claim 18 of the ‘432 patent to mean “a conical-shaped projection having a pre-determined cone angle, and extending upward (or upstream) along the center longitudinal axis of the nozzle body from the base of the distribution chamber, the apex of which is opposite (or downstream) the pressurized water-entrance opening.”

D. “a defined and substantially semi-circular first radius (r1) follows to a cone base of the water subdivider (8), where a curvature of first radius (r1) is directed substantially opposite to the pressurized water-entrance opening (4) and where the first radius (r1) forms the base of the distribution chamber (7)” – ‘432 Patent, Claim 18

1. Disputed Term in Context of the Claim

Yet again, claim 18 of the ‘432 patent calls for, with the disputed phrase emphasized:

18. A hydrodynamic nozzle for a cleaning of pipes and channels, formed of a nozzle base body having a connector for a water hose as a pressurized water-entrance opening, and having pressurized water-discharge openings on a side of the pressurized water-entrance opening disposed on same a like different part circles, wherein the pressurized water-discharge openings are connected through channels to the pressurized water-entrance openings, wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body, wherein

a distribution chamber (7) follows to the pressurized water-entrance opening (4), into which the channels (6a and 6b), connected to the pressurized water-discharge openings (5a, 5b), are joining, wherein a conical-shaped water subdivider (8) with a defined cone angle (gamma) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body 1, wherein a cone tip of the conical-shaped water subdivider (8) is directed in a direction of the pressurized water-entrance opening (4),

a defined and substantially semi-circular first radius (r1) follows to a cone base of the water subdivider (8), where a curvature of first radius (r1) is directed substantially

opposite to the pressurized water-entrance opening (4) and where the first radius (r1) forms the base of the distribution chamber (7),

and wherein each channel (6a, 6b), inclined at an angle ($\alpha 1$, $\alpha 2$) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1).

2. The Parties Proposed Constructions

The parties' proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
'432, claim 18	a defined and substantially semi-circular first radius (r1) follows to a cone base of the water subdivider (8), where a curvature of first radius (r1) is directed substantially opposite to the pressurized water-entrance opening (4) and where the first radius (r1) forms the base of the distribution chamber (7)	<p>"the distribution chamber has a pre-determined, substantially semi-circular shape extending from the central conical projection toward the outer portion of the nozzle; the radius of the semi-circular shape extends in a direction substantially opposite the direction of fluid flowing into the pressurized water-entrance opening"</p> <p>Brief: p. 23</p> <p>The principal difference between the parties' proposed constructions is: the shape and orientation of the claimed portion of the bottom of the distribution chamber (i.e., the first radius (r1)).</p> <p>The Court's resolution of that difference is necessary because: Defendants' construction improperly introduces a torus shape limitation into the claim, and because it recites a "specific dimension" without identifying a value. The Plaintiffs' position is that the Court needs to determine whether this claim term defines a torus-shaped distribution chamber or not,</p>	<p>The claim is indefinite. In the alternative: a first radius of a specified dimension such that the first radius is substantially semi-circular extends from the base of the conical shaped water subdivider and faces the water entrance opening and forms the torus of the base of the distribution chamber.</p> <p>Opening Brief: pp. 28-31 Response Brief: pp. 25-30</p> <p>The principal difference between the parties' proposed construction is the shapes of the "first radius" and where is and what is the "first radius."</p> <p>The Court's resolution of that difference is necessary because the claim language is indefinite and therefore Defendants cannot determine what the patentee is entitled to exclude others from making, using, or selling.</p>

Patent	Claim Term	KEG	Laimer
		and whether this claim term requires a specific radius value or not, so the fact finder can compare the Accused Instrumentalities to the claim language.	
Second Revised Joint Claim Construction Chart at 6-7			

3. The Parties' Arguments

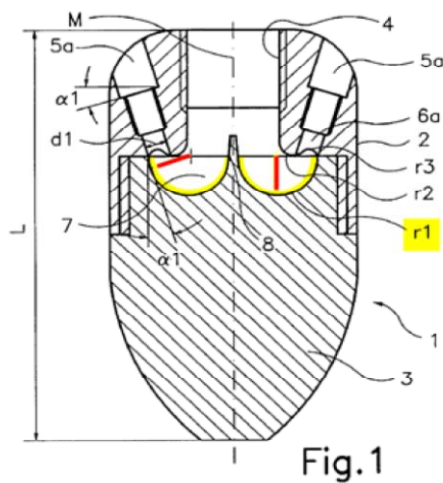
Laimer originally urged:

This language is unintelligible. The following is not understood: “a defined and substantially semicircular first radius (r1)”, “follows to”, “cone base”. The clause is not in conformance with 35 USC 112(2) and the claim is invalid.

If required, the proposed construction is the first radius (r1) faces the water entrance opening and forms the torus of the base of the distribution chamber.

JCC Statement [Dkt. No. 62] at 13.

KEG contended that the disputed phrase means “that the distribution chamber has a substantially semi-circular shape extending from the central conical projection (as best shown in the figures) toward the outer portion of the nozzle, and the radius of the semicircular shape extends in a direction generally opposite the direction of fluid flowing into the pressurized water-entrance opening.” KEG’s Brief [Dkt. No. 64] at 23. In particular, KEG referenced Ex. C-6 to its brief, Fig. 1 highlighted in yellow and red:



KEG urged that “[t]he specification mirrors the language of the claim, including the numeric and alpha-numeric references. * * * FIGS. 1, 2, 4b, 8, 9, and 10a-c each illustrate the semi-circular radius (reference r1) extending from the subdivider protrusion (reference 8) on one end and continuing toward the water guide channels (reference 6a and 6b) on the other end, and having a radius of curvature pointing generally in the direction of the water entrance opening.” KEG’s Brief [Dkt. No. 64] at 23-24.

Laimer’s Opening Brief contended that “[t]he language of the claim is not in conformance with 35 U.S.C. § 112, ¶ 2, and the claim is invalid.” Laimer’s Brief [Dkt. No. 65] at 28. However, Laimer urged, “if construction of the phrase is required, Defendants’ proposed construction is: The first radius (r1) faces the water entrance opening and forms the torus of the base of the distribution chamber.” *Id.*

Laimer contended that the disputed phrase “in its entirety has no ordinary and plain meaning,” and that the individual phrases “defined and substantially semi-circular first radius (r1),” “follows to a cone base,” and “directed substantially opposite,” have no “ordinary and plain meaning.” *Id.* at 29.

Laimer further contended that the word “defined” in “a defined and substantially semicircular first radius (r1)” required “dimensions or some other definition” to avoid indefiniteness. *Id.*

Laimer also contended that the word “substantially” was a subjective, relative term that rendered the claim indefinite and therefore invalid. Laimer relied on *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1350-52 (Fed. Cir. 2005), “[a] purely subjective construction of [a claim term] would not notify the public of the patentee’s right to exclude since the meaning of the claim language would depend on the unpredictable vagaries of any one person’s opinion.” Laimer’s Brief [Dkt. No. 65] at 30. Laimer urged that neither the specification nor drawings were sufficient to resolve the scope of “substantially.”

In Laimer’s Response, Laimer contended that “a defined and substantially semi-circular first radius (r1) follows to a cone base of the water subdivider (8)” in the disputed phrase limits the shape of the distribution chamber to a torus. Laimer’s Response [Dkt. No. 67] at 25. Laimer contended that KEG, in the JCC Statement [Dkt. No. 62] at 13, urged that the phrase means that “the distribution chamber has a semi-circular shape.” Laimer urged that KEG in its brief modified that

proposed construction to “the distribution chamber has a substantially semi-circular shape.” Laimer argues that KEG’s modification “highlights the inherent ambiguity and indefiniteness of the claim language” and “leaves open the issue of what constitutes ‘substantially semi-circular.’” Laimer’s Response [Dkt. No. 67] at 26.

Laimer urges that Laimer’s construction clarifies the claim language and “takes into consideration three important aspects.” *Id.* Specifically, Laimer argues that claim 18 does not cover the embodiment of Figs. 11a-11c.

First, Laimer argues that limiting the shape of the distribution chamber to a torus is consistent with claim 1 and the specification. Laimer urges that “torus” is used in multiple instances in claim 1 of the ‘432 patent, pointing to:

an inner face of substantially a first torus segment having a first radius (r1) of a generating circle of the first torus, said inner face of substantially the first torus merging to an end of the water subdivider, wherein the inner face of the first torus segment is disposed substantially opposite to the pressurized water-entrance opening in the distribution chamber, and wherein the inner face of the first torus segment forms a base of the distribution chamber

Laimer’s Response [Dkt. No. 67] at 27 (Laimer’s emphasis). Laimer also urges that “torus” is used repeatedly in the specification, for example:

The cone tip of the water subdivider is directed in a direction of the pressurized water-entrance opening. An inner face of substantially a first torus segment has a first radius r1 of a generating circle of the first torus. Said inner face of substantially the first torus merges to the end of the water subdivider. The inner face of the first torus segment is disposed substantially opposite to the pressurized water-entrance opening in the distribution chamber. The inner face of the first torus segment forms a base of the distribution chamber. Each channel of the first set of channels is inclined at the angle α_1 and merges such into the distribution chamber that an outer line of an outer diameter of the respective channel of the first set of channels merges with the first torus segment.

Id., quoting ‘432 patent, col. 2, line 56-col. 3, line 2 (Laimer’s emphasis).

Laimer contends that “where the first radius (r1) forms the base of the distribution chamber” does not describe the “radially expanding troughs” referenced at col. 11, lines 59-64 of the specification, but rather “describes a distribution chamber having a smooth, rounded base in the shape of a torus segment.” Laimer’s Response [Dkt. No. 67] at 28. Laimer urges that “[a]lthough Claim 18 does not explicitly specify that the base of the distribution chamber is a torus segment like

Claim 1, the language regarding the base of the distribution chamber actually describes a torus and not the ‘radially expanding troughs’ shown in Figures 11a-11c.” *Id.*

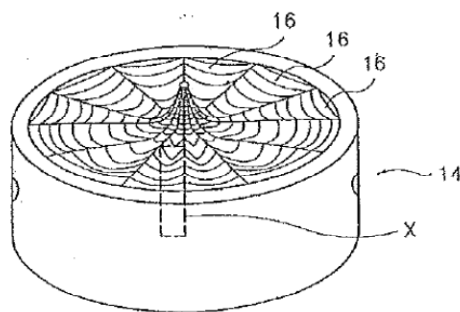


Fig. 11a

Second, Laimer says, the reference numerals in the disputed phrase do not reference Fig. 11, but refer to Figs. 1 and 2. Laimer urges that none of the reference numerals in claim 18, or dependent claims 19 and 20, refer to Fig. 11. Laimer argues that claim 18 therefore cannot be construed to cover the embodiment of Figs. 11a-11c. Laimer’s Response [Dkt. No. 67] at 29.

Third, Laimer says, KEG’s proposed construction “does not answer the question of whether the base of the distribution chamber is a torus segment or ‘radially expanding troughs.’” Laimer’s Response [Dkt. No. 67] at 29-30. Laimer says that “[t]his distinction is important due to the fact that Defendants’ products do not include a distribution chamber that is formed as a torus segment. Thus, if Plaintiffs’ proposed construction were adopted by the Court, the ambiguity and uncertainty as to the form of the distribution chamber would still exist.” *Id.*

Comparing the parties’ proposed constructions in the Second Revised Joint Claim Construction Chart:

KEG	Laimer
“the distribution chamber has a pre-determined, substantially semi-circular shape extending from the central conical projection toward the outer portion of the nozzle; the radius of the semi-circular shape extends in a direction substantially opposite the direction of fluid flowing into the pressurized water-entrance opening”	“a first radius <u>of a specified dimension</u> such that the first radius is substantially semi-circular extends from the base of the conical shaped water subdivider and faces the water entrance opening <u>and forms the torus of the base of the distribution chamber</u> ” (emphasis added)
Second Revised Joint Claim Construction Chart at 6-7	

KEG says that “[t]he principal difference between the parties’ proposed constructions is: the shape and orientation of the claimed portion of the bottom of the distribution chamber (i.e., the first radius (r1)).” Laimer, on the other hand, says “[t]he principal difference between the parties’ proposed construction is the shapes of the ‘first radius’ and where is and what is the ‘first radius.’”

As noted above, Laimer’s briefs contended (1) that the word “defined” in the phrase “a defined and substantially semicircular first radius (r1)” required “dimensions or some other definition” to avoid indefiniteness, and (2) that the phrase “and where the first radius (r1) forms the base of the distribution chamber” does not describe the “radially expanding troughs” of the embodiment of Figs. 11a-11c, but rather “describes a distribution chamber having a smooth, rounded base in the shape of a torus segment.” Laimer’s proposed construction in the Second Revised Joint Claim Construction Chart addresses those points by providing (1) “a first radius of a specified dimension,” and (2) “forms the torus of the base of the distribution chamber.”

KEG urges that “the Court needs to determine whether this claim term defines a torus-shaped distribution chamber or not, and whether this claim term requires a specific radius value or not, * * *.” Laimer urges that without adopting Laimer’s proposed construction, the claim is indefinite and invalid.

4. Discussion

a) Disputed Phrase as a Whole

Laimer’s contention that the disputed phrase “in its entirety has no ordinary and plain meaning,” and that the individual phrases “defined and substantially semi-circular first radius (r1),” “follows to a cone base,” and “directed substantially opposite,” have no “ordinary and plain meaning,” Laimer’s Brief [Dkt. No. 65] at 29, is not well-taken.

The rule has long been that “simply because a phrase as a whole lacks a common meaning does not compel a court to abandon its quest for a common meaning and disregard the established meanings of the individual words.” *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1372 (Fed. Cir. 2003)(“boot selection flag”). The individual words used in the disputed phrase all have ordinary and plain meanings, which collectively make the meaning of the phrase clear.

b) “a defined and substantially semi-circular first radius (r1)”

Laimer’s contention that the word “defined” in “a defined and substantially semicircular first radius (r1)” requires “dimensions or some other definition” to avoid indefiniteness, Laimer’s Brief [Dkt. No. 65] at 29, is likewise not well-taken.

The claims and specification of the ‘432 patent repeatedly refer to “defined angle” and “defined radius (r1)” which in context clearly connotes “pre-determined” or “set” rather than any specific dimension, although the specification also gives various examples, for example in Table 1.

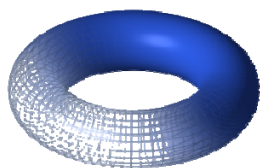
c) Is Claim 18 Limited to a Torus

Laimer contends that “a defined and substantially semi-circular first radius (r1) follows to a cone base of the water subdivider (8)” in the disputed phrase limits the shape of the distribution chamber to a torus. The master disagrees.

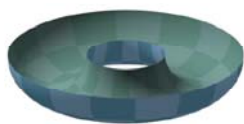
(1) A Torus

A “torus” has been defined in the field of mathematics as “1. The surface of a doughnut-shaped object. 2. The topological space obtained by identifying the opposite sides of a rectangle. 3. The group which is the product of two circles.” MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS (5th ed. 1994) at 2046. Or, more simply, “[i]n geometry, a torus * * * is a surface of revolution generated by revolving a circle in three-dimensional space about an axis coplanar with the circle.” <http://en.wikipedia.org/wiki/Torus> (last visited January 5, 2013). *See also* <http://mathworld.wolfram.com/Torus.html> (last visited January 5, 2013).

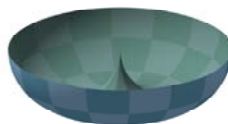
Depending on how close the circles are to the axis of revolution, various shapes may be formed, for example:



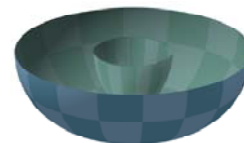
torus



cross-section of ring
torus



cross-section of horn
torus



cross-section of spindle
torus

<http://en.wikipedia.org/wiki/Torus> (last visited January 5, 2013)

(2) Laimer's First Argument

(a) "Torus" is Used in Other Claims, *e.g.*, Claim 1

Laimer's contention that "a defined and substantially semi-circular first radius (r_1) follows to a cone base of the water subdivider (8)" in the disputed phrase limits the shape of the distribution chamber to a torus, Laimer's Response [Dkt. No. 67] at 25, relies on three arguments.

The first is that "torus" was used multiple times in claim 1 of the '432 patent. Although true, claim 18 does not use the term "torus." Apart from the fact that one of the cardinal rules of claim construction is that limitations from the specification are not normally read into the claims, *Phillips*, 415 F.3d at 1323, the fact that claim 1 is expressly limited to "a first torus segment having a first radius (r_1) of a generating circle of the first torus," and dependent claims 2-17 are likewise so limited (many not only because they depend from claim 1, but because they expressly include "torus segment," *i.e.*, claims 2, 3, 7, 8 and 16) while claim 18 and its dependent claims are not expressly limited to a "torus" or "torus segment," is a strong indicator that the patentee did not intend that claim 18 and its dependent claims should be limited to a "torus." See *e.g.*, *Digital-Vending Servs. Int'l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1275 (Fed. Cir. 2012) ("In this case, the reference in some claims to a 'registration server being further characterized in that it is free of content managed by the architecture' strongly implies that the term 'registration server,' standing alone, does not inherently mean a server that is free of managed content."); *DealerTrack, Inc. v. Huber*, 674 F.3d 1315, 1327 (Fed. Cir. 2012) ("Moreover, the language of the claims using the term 'selectively forwarding' clearly indicates that the patentee intended some claims to cover embodiments that implement only one of the disclosed routing schemes, as opposed to limiting every claim to the preferred embodiment that offers all three.").

Accordingly, Laimer's argument that other claims use the word "torus" in similar limitations is not persuasive that the disputed phrase should be construed as being limited to a torus. Indeed, the fact that the patentee did not use "torus" in claim 18 counsels strongly against reading "torus" into the claim language.

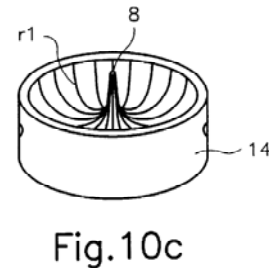
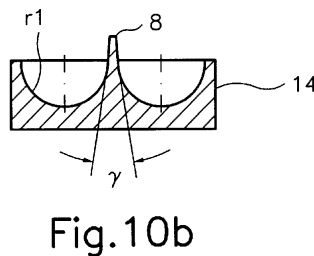
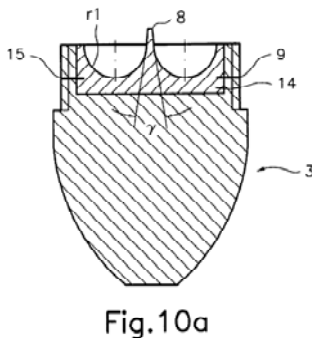
(b) Specification

Laimer also urges that "torus" is used repeatedly in the specification. But the fact that a term has been used repeatedly in the specification does not alone justify importing that term as a limitation into the claims – especially where, as here, some claims are so limited, but others are not.

See e.g., *Laitram Corp. v. NEC Corp.*, 163 F.3d 1342, 1348 (Fed. Cir. 1998) (“Laitram essentially argues that because the term ‘type character’ is used repeatedly throughout the written description, the ‘type quality’ limitation is implicit in the original claims. This argument is incorrect; the mere repetition in the written description of a preferred aspect of a claimed invention does not limit the scope of an invention that is described in the claims in different and broader terms”).

**(c) Claim Language Does Not Cover Embodiment of
Figs. 11a-11c**

Figs. 11a-11c, and the accompanying description, relate to another embodiment of the invention. In connection with Figs. 10a-10c:



the specification explains that:

FIG. 10a is a sectional view of a nozzle lower part with an inserted form element;

FIG. 10b is a sectional view of the form element;

FIG. 10c is a perspective view of the form element

432 patent, col. 5, lines 66-67-col. 6, lines 1-2. The specification explains that water divider 8 may be a separate part and “form element” 14 may form water subdivider 8 and the first toroidal segment having a radius r1:

It is further possible in continuation of this concept to produce the conical-shaped water subdivider 8 as a separate part according to FIG. 9 and to place the water subdivider 8 disengageably or fixedly into the nozzle lower part 3. A further advantageous embodiment of the hydrodynamic nozzle comprises that the lower part 3 exhibits a form element 14 according to FIG. 10a, which form element 14 forms the water subdivider 8 and the first toroidal segment having a radius r1. The surface of the first toroidal segment is preferably made of a wear-resistant and drag-coefficient-lowering material. The form element 14 is preferably disengageably placed into the lower part such that it can be exchanged in case of wear and, in particular, the form

element 14 is arrested with the connection element 15 by screwing or with pins, as illustrated schematically.

In essence, according to the description, “form element 14” is replaceable “such that it can be exchanged in case of wear.”

Figs. 11a-11c:

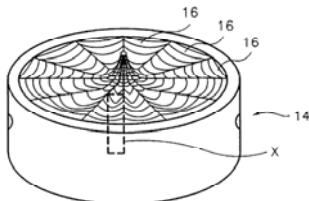


Fig.11a

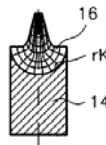


Fig.11b

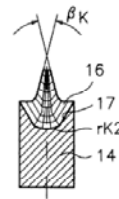


Fig.11c

are said to illustrate:

FIG. 11a is a perspective view of a form element with a chamber-like subdivision;

FIG. 11b is a sectional and in part perspective view of a first type of chamber segments;

FIG. 11c is a sectional and in part perspective view of a second type of chamber segments

432 patent, col. 6, lines 3-8.

The specification explains that “form element 14” may be divided into chambers 16 coinciding with the number of pressurized water-discharging openings:

The form element 14 can also be subdivided into several chambers 16 in the form of segments, as illustrated in FIG. 11a, wherein the number of the chambers 16 should coincide with the number of the pressurized water-discharge openings. The illustration of two chamber segments with different forms along the line X in FIG. 11a is shown in FIGS. 11b and 11c. According to the construction of FIG. 11a, the inner face of the first torus segment is replaced by a plurality of radially expanding troughs corresponding in number to the number of channels 6a and 6b. The troughs direct more of the flow of the liquid to the channels 8a, 6b as compared to the inner first torus segment surface. The depths of the troughs can be from about 0.5 to 2 times the protruding height of the water subdivider 8 above the outer edge of the lower part 3. The water subdivider 8 of FIGS. 11a, 11b and 11c exhibits a rotary axis with a symmetry corresponding at least to the number of channels 6a or of channels 6b.

The chambers 16 are formed as troughs and exhibit also a semi-circular shape with a radius r_K as seen in cross-section and as illustrated in FIG. 11b. A further variation comprises that the chambers 16 formed as troughs exhibit edges 17 with a defined

opening angle β_K and a radius r_{K2} at the base, as shown in FIG. 11c, in order to assure an optimum flow-technical behavior of the liquid beam.

432 patent, col. 11, lines 53-67-col. 12, lines 1-10 (emphasis added). In that embodiment, “the inner face of the first torus segment is replaced by a plurality of radially expanding troughs corresponding in number to the number of channels 6a and 6b. The troughs direct more of the flow of the liquid to the channels 8a, 6b as compared to the inner first torus segment surface.” 432 patent, col. 11, lines 59-64.

Laimer contends, as noted above, that “and where the first radius (r_1) forms the base of the distribution chamber” in claim 18 does not describe the “radially expanding troughs” referenced at col. 11, lines 59-64 of the specification, but rather “describes a distribution chamber having a smooth, rounded base in the shape of a torus segment.” Laimer’s Response [Dkt. No. 67] at 28. Laimer, once again, urges that “[a]lthough Claim 18 does not explicitly specify that the base of the distribution chamber is a torus segment like Claim 1, the language regarding the base of the distribution chamber actually describes a torus and not the ‘radially expanding troughs’ shown in Figures 11a-11c.” *Id.*

The disputed language of claim 18, *i.e.*, “a defined and substantially semi-circular first radius (r_1) follows to a cone base of the water subdivider (8), where a curvature of first radius (r_1) is directed substantially opposite to the pressurized water-entrance opening (4) and where the first radius (r_1) forms the base of the distribution chamber (7)” clearly is broad enough to cover both a torus segment and the embodiment of Figs. 11a-11c. The disputed language is not limited to a “torus” or “torus segment” for the reasons given above.

(3) Laimer’s Second Argument – Reference Numerals in the Claims

Laimer’s second argument that claim 18 cannot be construed to cover the embodiment of Figs. 11a-11c because the reference numerals in claim 18 do not reference Fig. 11, but rather Figs. 1 and 2, Laimer’s Response [Dkt. No. 67] at 29, is not persuasive.

KEG notes that “[t]he inventors named on the patents-in-suit first filed patent applications for their inventions in Germany, and then later in the U.S. after their German applications were translated into English.” KEG’s Brief [Dkt. No. 64] at 2. In practice, sometimes the same or similar claims are presented in both European and U.S. applications for a variety of reasons.

Although the use of reference numerals in claims is not commonplace in applications originally filed in the U.S., Rule 29(7) of the regulations implementing the European Patent Convention (EPC) expresses a preference for reference numerals in claims:

Rule 29

Form and content of claims

* * * * *

(7) If the European patent application contains drawings, the technical features mentioned in the claims shall preferably, if the intelligibility of the claim can thereby be increased, be followed by reference signs relating to these features and placed between parentheses. These reference signs shall not be construed as limiting the claim. (emphasis added)

<http://www.epo.org/law-practice/legal-texts/html/epc/1973/e/r29.html> (last visited January 5, 2013). Although the EPC regulations encourage reference numerals in the claims, the regulations also clearly provide that such reference numerals “shall not be construed as limiting the claim.”

In the U.S., section 608.01(m), Manual of Patent Examining Practices (MPEP), provides that reference numerals may, as an option, be used in claims, but doing so has no effect on the scope of the claims:

Reference characters corresponding to elements recited in the detailed description and the drawings may be used in conjunction with the recitation of the same element or group of elements in the claims. The reference characters, however, should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. The use of reference characters is to be considered as having no effect on the scope of the claims. (emphasis added)

<http://www.uspto.gov/web/offices/pac/mpep/s608.html#d0e45061> (last visited January 5, 2013).

“The MPEP [is] commonly relied upon as a guide to patent attorneys and patent examiners on procedural matters.’ * * * While the MPEP does not have the force of law, it is entitled to judicial notice as an official interpretation of statutes or regulations as long as it is not in conflict therewith.”

Molins PLC v. Textron, Inc., 48 F.3d 1172, 1180 n.10 (Fed. Cir. 1995). Although it does not appear that the question whether reference numerals in claims may affect claim scope has been directly addressed by the Federal Circuit, at least two district courts have followed the guidance of the M.P.E.P. See, *EasyCare, Inc. v. Lander Indus., Inc.*, 2011 U.S. Dist. LEXIS 130241 *28 (D. Ariz. 2011)(“the PTO expressly states that ‘[t]he use of reference characters is to be considered as having

no effect on the scope of the claims.’ Manual of Patent Examining Procedure 608.01(m).”); *Relume Corp. v. Dialight Corp.*, 63 F. Supp.2d 788, 796 n.6 (E.D. Mich. 1999)(“ Some defendants suggest that the reference numeral attached to ‘LED array’ limits the phrase’s ordinary meaning by referring the reader to the diagram of the array’s preferred embodiment, which shows ballast resistors in the array. I find this argument unpersuasive, however. A reference numeral is simply a convenient tool for directing the reader to an example of the element the patentee has claimed. Had the drafter wanted to incorporate the limitations of the preferred embodiment into the language of claim 1, he or she could have done so quite easily with words.”), *aff’d*, 4 Fed. Appx. 893 (Fed. Cir. 2001). *Cf.*, *Lydall Thermal/Acoustical, Inc. v. Fed. Mogul Corp.*, 566 F. Supp. 2d 602, 613 (E.D. Mich. 2008)(“While there is authority indicating that reference numerals do not have an effect on the scope of a claim, see MPEP § 601.01(m), the reference numerals are consistent with the description of the batt in the specification.”).

On a related issue, the Federal Circuit has long held that while drawings may aid in construing claims, drawings representing a preferred embodiment are not “meant to represent ‘the’ invention or to limit the scope of coverage defined by the words used in the claims themselves.” *Gart v. Logitech, Inc.*, 254 F.3d 1334, 1342 (Fed. Cir. 2001). *See also*, *Varco, L.P. v. Pason Systems USA Corp.*, 436 F.3d 1368, 1375 (Fed. Cir. 2006)(“This disclosure and corresponding Figures do not limit the invention as a whole to the use of pneumatically operated valves; rather they merely list such valves as but one example of relays operable in the present invention.”), *TI Group Automotive Systems (North America), Inc. v. VDO North America, L.L.C.*, 375 F.3d 1126, 1136 (Fed. Cir. 2004)(“With respect to VDO’s first argument, regarding the drawings being limited to the construction it urges, we have held that ‘the mere fact that the patent drawings depict a particular embodiment of the patent does not operate to limit the claims to that specific configuration,’” quoting *Anchor Wall Sys. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1306-07 (Fed. Cir. 2003)), *Prima Tek II, L.L.C. v. Polypap, S.A.R.L.*, 318 F.3d 1143, 1148 (Fed. Cir. 2003)(“the mere fact that the patent drawings depict a particular embodiment of the patent does not operate to limit the claims to that specific configuration.”), *Beckson Marine, Inc. v. NFM, Inc.*, 292 F.3d 718, 724 (Fed. Cir. 2002)(“this court does not construe the figures depicting a single preferred embodiment as limiting the claim terms in light of other language in the written description embracing other draining structures.”).

The purpose of optionally using reference numbers in claims is, as expressed by the Eastern District of Michigan, “simply a convenient tool for directing the reader to an example of the element

the patentee has claimed.” *Relume*, 63 F. Supp.2d at 796 n. Indeed, the Federal Circuit periodically inserts reference numerals into claims in its opinions to add in explanation. *See e.g., Texas Instruments, Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1561-62 (Fed. Cir. 1996), *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1102 (Fed. Cir. 1996). Doing so does not thereby limit the claims.

Here, as noted above, the claim language *per se* clearly covers the alternate embodiment of Figs. 11a-11c. The use of reference numerals in the claim does not limit the claim to the embodiment of Figs. 1 and 2.

(4) Laimer’s Third Argument – KEG’s Proposed Construction is Ambiguous

Laimer’s third argument that KEG’s proposed construction “does not answer the question of whether the base of the distribution chamber is a torus segment or ‘radially expanding troughs,’” Laimer’s Response [Dkt. No. 67] at 29-30, is also unpersuasive. Laimer urges that “[t]his distinction is important due to the fact that Defendants’ products do not include a distribution chamber that is formed as a torus segment. Thus, if Plaintiffs’ proposed construction were adopted by the Court, the ambiguity and uncertainty as to the form of the distribution chamber would still exist.” *Id.*

The ready answer is that there is no ambiguity or uncertainty. KEG’s proposed construction is not ambiguous or unclear – nor has Laimer shown the same. Laimer admittedly proposes a construction to avoid infringement. But litigation-inspired proposed constructions are especially suspect. That KEG’s proposed construction covers multiple disclosed embodiments and, according to Laimer, the accused product, does not render KEG’s proposed construction ambiguous or uncertain.

In particular, neither claim 18 nor KEG’s proposed construction is ambiguous (or indefinite) because both use the word “substantially.” KEG’s proposed construction “the distribution chamber has a pre-determined, substantially semi-circular shape extending from the central conical projection toward the outer portion of the nozzle; the radius of the semi-circular shape extends in a direction substantially opposite the direction of fluid flowing into the pressurized water-entrance opening” uses the word “substantially” because claim 18 calls for a “substantially semi-circular first radius (r_1)” and “where a curvature of first radius (r_1) is directed substantially opposite to the pressurized water-entrance opening (4).” Nevertheless, Laimer contends

“substantially” is a subjective, relative term that renders claim 18 indefinite and therefore invalid, and KEG’s proposed construction ambiguous. Laimer is mistaken.

First, Laimer’s reliance on *Datamize* is misplaced. In *Datamize*, the patent-in-suit was drawn to software that allowed a person to author user interfaces for electronic kiosks. The patent said that “[t]he authoring system enables the user interface for each individual kiosk to be customized quickly and easily within wide limits of variation, yet subject to constraints adhering the resulting interface to good standards of aesthetics and user friendliness.” The subject claim called for “wherein each said element type permits limited variation in its on-screen characteristics in conformity with a desired uniform and aesthetically pleasing look and feel for said interface screens on all kiosks of said kiosk system.” The Federal Circuit reasoned that “[m]erely understanding that ‘aesthetically pleasing’ relates to the look and feel of interface screens, or more specifically to the aggregate layout of elements on interface screens, fails to provide one of ordinary skill in the art with any way to determine whether an interface screen is ‘aesthetically pleasing.’” 417 F.3d at 1349.

However, an entirely subjective term such as “aesthetically pleasing” must be contrasted with cases involving words of degree, like “substantially.” The Federal Circuit has advised that “[t]his court has repeatedly confirmed that relative terms such as ‘substantially’ do not render patent claims so unclear as to prevent a person of skill in the art from ascertaining the scope of the claim.” *Deere & Co. v. Bush Hog, LLC*, ___ F.3d ___ (Fed. Cir. 2012). Indeed, “substantially” and similar words of approximation such as “about” are frequently used in patent claims. In *Andrew Corp. v. Gabriel Elecs. Inc.*, 847 F.2d 819, 821 (Fed. Cir. 1988), for example, the Federal Circuit noted that “[t]he criticized words [‘approach each other,’ ‘close to,’ ‘substantially equal,’ and ‘closely approximate’] are ubiquitous in patent claims. Such usages, when serving reasonably to describe the claimed subject matter to those of skill in the field of the invention, and to distinguish the claimed subject matter from the prior art, have been accepted in patent examination and upheld by the courts.”

Laimer argues that phrases such as “substantially opposite” are indefinite because something is either “opposite” or not. But that is not the correct analysis. In *Deere & Co.*, for example, the claim term at issue was “substantially planar.” The Federal Circuit concluded that “[b]ecause ‘substantially planar’ reasonably describes the claimed subject matter to one skilled in the art, it does not render Claim 1 indefinite.” *Id.* at ___. The word “substantially” merely avoided limiting the

claim to a component that was 100% strictly “planar.” Doing so does not render a claim indefinite (or a proposed claim construction ambiguous).

Laimer urges that neither the specification nor drawings are sufficient to resolve the scope of “substantially.” But that ignores the context in which “substantially” is used in the specification.

In *Ecolab, Inc. v. Envirochem, Inc.*, 264 F.3d 1358, 1367 (Fed. Cir. 2001), for example, the term-at-issue was “substantially uniform.” The Federal Circuit in *Pall Corp. v. Micron Seps., Inc.*, 66 F.3d 1211, 1217 (Fed. Cir. 1995), noted that “[t]he use of the word ‘about,’ avoids a strict numerical boundary to the specified parameter. Its range must be interpreted in its technologic and stylistic context.” In *Ecolab*, the Federal Circuit noted that “like the term ‘about,’ the term ‘substantially’ is a descriptive term commonly used in patent claims to ‘avoid a strict numerical boundary to the specified parameter.’” 264 F.3d at 1367. The Federal Circuit concluded that “‘substantially’ avoids the strict 100% nonuniformity boundary.” *Id.*

The same is true here. When read in light of the specification, it is clear that in the phrase “substantially semi-circular,” the word “substantially” only avoids a strict requirement for being 100% “semi-circular.” Similarly, “substantially” in the phrase “substantially opposite” just avoids a strict requirement of being 100% “opposite.”

Although “substantially” thus introduces some degree of variation from being strictly “semi-circular” or strictly “opposite,” again, “a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement.” *Invitrogen*, 424 F.3d at 1384 (quotation marks omitted). “[I]f the language is as precise as the subject matter permits, the courts can demand no more.” *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624 (Fed. Cir. 1985).

5. Recommendation

The master recommends that the Court construe “a defined and substantially semi-circular first radius (r1) follows to a cone base of the water subdivider (8), where a curvature of first radius (r1) is directed substantially opposite to the pressurized water-entrance opening (4) and where the first radius (r1) forms the base of the distribution chamber (7)” in claim 18 of the ‘432 patent to mean “the distribution chamber has a pre-determined, substantially semi-circular shape extending from the central conical projection toward the outer portion of the nozzle; the radius of the semi-

circular shape extends in a direction substantially opposite the direction of fluid flowing into the pressurized water-entrance opening.”

E. “and wherein each channel (6a, 6b), inclined at an angle (α_1 , α_2) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1)” – ‘432 Patent, Claim 18

1. Disputed Term in Context of the Claim

Once again, claim 18 of the ‘432 patent calls for, with the disputed phrase emphasized:

18. A hydrodynamic nozzle for a cleaning of pipes and channels, formed of a nozzle base body having a connector for a water hose as a pressurized water-entrance opening, and having pressurized water-discharge openings on a side of the pressurized water-entrance opening disposed on same a like different part circles, wherein the pressurized water-discharge openings are connected through channels to the pressurized water-entrance openings, wherein the pressurized water-discharge openings and the channels are disposed inclined at a defined angle relative to an axis of the nozzle body, wherein

a distribution chamber (7) follows to the pressurized water-entrance opening (4), into which the channels (6a and 6b), connected to the pressurized water-discharge openings (5a, 5b), are joining, wherein a conical-shaped water subdivider (8) with a defined cone angle (γ) is disposed a base of the distribution chamber (7), disposed oppositely to the pressurized water-entrance opening (4), and centered relative to the axis of the nozzle body 1, wherein a cone tip of the conical-shaped water subdivider (8) is directed in a direction of the pressurized water-entrance opening (4),

a defined and substantially semi-circular first radius (r1) follows to a cone base of the water subdivider (8), where a curvature of first radius (r1) is directed substantially opposite to the pressurized water-entrance opening (4) and where the first radius (r1) forms the base of the distribution chamber (7),

and wherein each channel (6a, 6b), inclined at an angle (α_1 , α_2) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1).

2. The Parties Proposed Constructions

The parties’ proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
‘432, claim 18	wherein each channel (6a, 6b), inclined at an	“the channels are inclined relative to the central axis of	“either aligned at a tangent with the torus-shaped distribution chamber

Patent	Claim Term	KEG	Laimer
	angle (α_1 , α_2) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1).	<p>the nozzle, and they lead from the discharge openings to the distribution chamber, and they have outer diameters that merge with the semi-circular radius of the distribution chamber either tangentially at the first radius (r1) or, continuously into the first radius (r1)”</p> <p>Brief: p. 26</p> <p>The principal difference between the parties’ proposed constructions is: the shape of the claimed bottom portion of the distribution chamber (i.e., the first radius (r1)), and how the channels merge with that shape.</p> <p>The Court’s resolution of that difference is necessary because: Defendants’ construction improperly introduces a torus shape limitation into the claim. The Plaintiffs’ position is that the Court needs to determine whether this claim term defines a torus-shaped distribution chamber or not, so the fact finder can compare the Accused Instrumentalities to the claim language.</p>	<p>or merges with the torus-shaped distribution chamber”</p> <p>Brief: pp. 31-33</p> <p>The principal difference between the parties’ proposed construction is the shape of the distribution chamber and how the channels connect to the distribution chamber.</p> <p>The Court’s resolution of that difference is necessary because the claim language is indefinite and therefore Defendants cannot determine what the patentee is entitled to exclude others from making, using, or selling.</p>

Second Revised Joint Claim Construction Chart at 7-9

3. The JCC Statement

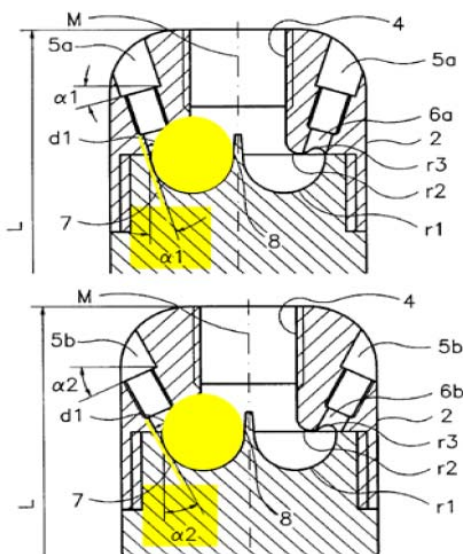
In the JCC Statement the parties proposed the following:

KEG	Laimer
Proposed construction is: the channels (a.k.a water channels) are inclined relative to the central axis of the nozzle, and they lead from the discharge openings to the distribution chamber, and they	This language is unintelligible. The following is not understood: “such”, “joins such”, “--that outermost line of an outer diameter of the channels aligns tangentially at the first radius or, respectively, merges

KEG	Laimer
<p>have outer diameters that merge with the semi-circular radius of the distribution chamber in a generally continuous manner</p>	<p>continuously into the first radius (r1)”, “outer diameter”, “outermost line”, “aligns tangentially at the first radius (r1), “or, respectively, merges continuously into the first radius (r1).</p> <p>It is not understood how the term “or” is to be construed. Does the accused party infringe if he has one but not the other, or must he have both alternatively?</p> <p>Is “each channel (6a, 6b), inclined” at two angles “(α_1, α_2)”</p> <p>The clause is not in conformance with 35 USC 112(2) and the claim is invalid. If required, the proposed construction is each channel is aligned with or merges with the torus-shaped distribution chamber in some required (but unidentified) manner.</p>
JCC Statement [Dkt. No. 62] at 13-14.	

4. The Parties’ Arguments

KEG referenced Ex. C-7 to its brief which includes the following highlighted figures:



KEG’s Brief [Dkt. No. 64] at 26. KEG urged that the disputed language “means that the channels (water channels) are inclined relative to the central axis of the nozzle, and they lead from the

discharge openings to the distribution chamber, and they have outer diameters that merge with the semi-circular radius of the distribution chamber in a generally continuous manner.” *Id.* KEG argued “[t]hat construction is supported by the specification, which mirrors the claim language. Ex. A: at col. 6, lines 39-43. Moreover, FIGS. 1, 2 and 8 illustrate the continuity described in the specification, where the substantially semi-circular shape of each radius (r1) merges continuously with each water guide channel (6a and 6b) forcing the water through the inclined water guide channels and out of the nozzle body through the pressurized water discharge openings (5a and 5b).” *Id.*

KEG further argued, *vis-à-vis* Laimer’s proposed construction that “[r]egarding Defendants’ interpretation, the claim term concerns how the discharge openings merge with the water guide channels, and are silent about the shape of the base of the distribution chamber. Thus, once again Defendants’ ‘torus’ reference is irrelevant. Further, the manner in which the components merge is not undefined, as Defendants contend; the claim itself clearly defines how they merge, as viewed through the eyes of one of ordinary skill in the art—they merge continuously.” *Id.* at 26-27.

Laimer argues that the “language of the claim does not particularly point out and distinctly claim the invention and is not in conformance with 35 U.S.C. § 112, ¶ 2, and the claim is invalid. However, if construction of the phrase is required, Defendants’ proposed construction is: Each channel is aligned with or merges with the torus-shaped distribution chamber is [*vis.* “in”] some required (but unidentified) manner.” Laimer’s Brief [Dkt. No. 65] at 31.

Laimer argues “[t]he phrase in its entirety has no ordinary and plain meaning. The phrases within the overall phrase, ‘inclined at an angle (α_1 , α_2),’ ‘joins such into the distribution chamber (7),’ ‘outermost line of an outer diameter of the channels (6a, 6b),’ and ‘or, respectively,’ have no ordinary and plain meaning. Like so many of the other phrases included in Claim 18, these phrases are unintelligible. The phrases do not particularly point and distinctly claim the invention and do not enable a person ordinarily skilled in the art to determine if he avoids infringement of the claim.” *Id.* at 31-32.

Laimer further argues that “[t]he claim language provides that each channel ‘joins such into the distribution channel.’ It is not clear, however, to what object ‘such’ refers. Nothing in the patent specification or surrounding words of the claim assists an ordinarily skilled person in the art to determine to what object ‘such’ refers. Without knowing the antecedent of ‘such,’ an ordinarily skilled person would be unable to make and use the invention.” *Id.* at 32.

Laimer also argues that “[f]urthermore, in the phrase ‘aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1),’ the patentee has chosen to use the disjunctive form rather than the conjunctive. The use of the disjunctive is a clear example of the indefiniteness of the claims of the 432 Patent. Rather than stating that the patent covers a tangential alignment of the first radius (r1) and a continuous merge into the first radius, the patentee used the disjunctive term ‘or.’ It is not clear whether the inventor intended to cover an invention that had a tangential alignment at the first radius or a continuous merge into the first radius or both. Plaintiff’s proposed construction does not sufficient resolve the inherent ambiguity that arises from the use of the disjunctive form and completely disregards the phrase ‘aligns tangentially at the first radius.’ ” *Id.* at 32-33.

Laimer lastly argues that “Plaintiff’s citation to Column 6, lines 39-43 offers no support for Plaintiffs’ proposed construction and offers no guidance as to how the claim language should be construed. Column 6, lines 39-43 is a nearly identical restatement of the claim language at issue and does not resolve the ambiguity that is inherent in the use of the disjunctive ‘or.’ ” *Id.* at 33.

5. Discussion

As reflected in the Second Revised Joint Claim Construction Chart:

Claim Term	KEG	Laimer
wherein each channel (6a, 6b), inclined at an angle ($\alpha 1$, $\alpha 2$) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1).	“the channels are inclined relative to the central axis of the nozzle, and they lead from the discharge openings to the distribution chamber, and they have outer diameters that merge with the semi-circular radius of the distribution chamber either tangentially at the first radius (r1) or, continuously into the first radius (r1)”	“either aligned at a tangent with the torus-shaped distribution chamber or merges with the torus-shaped distribution chamber”

KEG’s proposed construction more completely matches the claim language than Laimer’s, but both recognize that the channels are inclined relative to the central axis of the nozzle, and lead from the discharge openings to the distribution chamber, and have outer diameters that align tangentially at the first radius (r1) or, merges continuously into the first radius.

The specification similarly explains:

A defined, substantially semi-circular radius follows to the cone base of the water subdivider, wherein the curvature of the semi-circular radius is directed opposite to the pressurized water-entrance opening. Each channel joins into the distribution hollow space such that the outermost line of the outer diameter of the channel rests tangentially at the radius or, respectively, continues into the radius.

Laimer's proposed construction that the distribution channel must be "torus-shaped" is rejected for the same reasons given above in connection with the preceding limitation in claim 18 of the '432 patent.

Laimer's argument that the phrase in its entirety has no ordinary and plain meaning, and that individual phrases such as "inclined at an angle (α_1 , α_2)," have no ordinary and plain meaning is also addressed above. Once again, the rule has long been that "simply because a phrase as a whole lacks a common meaning does not compel a court to abandon its quest for a common meaning and disregard the established meanings of the individual words." *Altiris*, 318 F.3d at 1372. The individual words used in the disputed phrase all have ordinary and plain meanings, which collectively make the meaning of the phrase clear.

Laimer urges that the word "such" renders the claim indefinite and invalid. It does not. Although perhaps somewhat awkward, the meaning is clear when viewed in conjunction with the specification and drawings.

Laimer also urges that the word "or" provides "a clear example of the indefiniteness of the claims of the 432 Patent." But that is an overstatement. In the context of the claim, as well as in light of the specification and drawings, it is clear that the claim was intended to cover both "aligns tangentially" and "merges continuously," *i.e.*, the use of "or" means that the claim covers either. Laimer urges that KEG's proposed construction in the JCC ignored "aligns tangentially at the first radius." KEG's proposed construction in the Second Revised Joint Claim Construction Chart addresses the same.

Laimer further urges that the specification at col. 6, lines 39-43, namely:

Each channel 6a, 6b, inclined at an angle α_1 , α_2 , joins such into the distribution chamber 7 that the outermost line of the outer diameter of the channel 6a, 6b aligns tangentially at the first radius r1 or, respectively, merges continuously into the first radius r1.

is not helpful because it is virtually the same as the claim language. Although the language is similar, and again somewhat awkward, the meaning is nonetheless clear.

6. Recommendation

The master recommends that the Court construe “wherein each channel (6a, 6b), inclined at an angle (α_1 , α_2) joins such into the distribution chamber (7) that outermost line of an outer diameter of the channels (6a, 6b) aligns tangentially at the first radius (r1) or, respectively, merges continuously into the first radius (r1).” in claim 18 in the ‘432 patent to mean “the channels are inclined relative to the central axis of the nozzle, and they lead from the discharge openings to the distribution chamber, and they have outer diameters that merge with the semi-circular radius of the distribution chamber either tangentially at the first radius (r1) or, continuously into the first radius (r1).”

F. “wherein the water guide channels partially converge into one another” – ‘243 Patent, Claim 1

1. Disputed Term in Context of the Claim

Claim 1 of the ‘243 patent calls for (with the disputed phrase emphasized):

1. A hydrodynamic tool for cleaning of pipes and channels comprising

a tool frame having a front side and having a rear side;

a pressurized water-entry inlet opening disposed at the rear side of the tool frame and furnishing a connection for a water hose;

pressurized water-discharge outlet openings disposed at the rear side of the tool frame and furnishing a connection for discharge nozzles, wherein the discharge nozzles are screwable into the pressurized water-discharge outlet openings;

water guide channels in the shape of channels having a circular cross-section, wherein the pressurized water-entry inlet opening is connected to the pressurized water-discharge outlet openings through respective water guide channels;

wherein the water guide channels partially converge into one another, wherein at least two of the water guide channels rest with an innermost point of a rearwardly disposed diameter at a center point on an axis of the tool frame and with an outermost point of said diameter rests at an outer diameter at the front end of the pressurized water-entry inlet opening;

wherein a distance between a frontmost saddle point of an inner wall of a respective water guide channel and an opposite inner wall point of the water guide channel, disposed along an axially parallel straight line, is smaller than a thickness of a wall

between the pressurized water-entry inlet opening and a respective pressurized water-discharge outlet opening;

wherein the water guide channels, corresponding to the respective ones of the pressurized water-discharge outlet openings, are merging into the respective pressurized water-discharge outlet openings, wherein unsteady cross-sectional changes of the cross-section of the water guide channels in a direction toward the discharge nozzle are absent.

2. The Parties Proposed Constructions

The parties' proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
'243, claim 1	wherein the water guide channels partially converge into one another,	<p>"the phrase should be given its ordinary meaning to one of ordinary skill in the art, i.e., this phrase refers to the fact that the channels are discrete channels at their respective discharge ends, but upstream they start out together at the center of the distribution chamber"</p> <p>Brief: p. 35</p> <p>The principal difference between the parties' proposed constructions is: the arrangement of the individual channels relative to each other.</p> <p>The Court's resolution of that difference is necessary because: Defendants' construction introduces ambiguity because "fully meet" suggests two lines, planes, or surfaces intersecting, whereas in this particular case we are referring to a volume space</p>	<p>"the water guide channels come together but not in their entirety"</p> <p>Brief: p. 37</p> <p>The principal difference between the parties' proposed construction is: are the channels discrete and how do they merge?</p> <p>The Court's resolution of that difference is necessary because the construction of this clause is determinative of infringement.</p>
Second Revised Joint Claim Construction Chart at 9-10			

3. The Parties' Arguments

Exhibit C-11 to KEG's Opening Brief highlights Figs. 2a and 2b as follows:

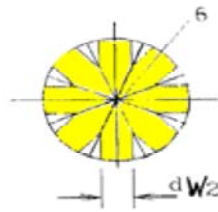


Fig. 2a

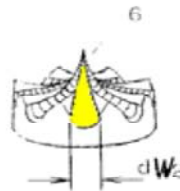


Fig. 2b

KEG urges that “wherein the water guide channels partially converge into one another” should be given its ordinary and customary meaning. In particular, KEG urges that “the term ‘partially’ means ‘less than the entirety,’ or ‘less than all’; and the term ‘converge’ means ‘to come together.’ Putting them together, the phrase ‘partially converge into one another’ simply refers to the fact that, as shown in the highlighted figures FIGS. 2a and 2b, the water guide channels are discrete channels at their respective discharge ends, but upstream they originate together at the center of the distribution chamber.” KEG’s Brief [Dkt. No. 64] at 35-36.

KEG urges that the ‘243 patent at col. 9, lines 3-10, providing:

Since the water guide channels 3 start in the center of the pressurized water-entry inlet opening 2, since the water guide channels 3 join there into each other, and since the water guide channels 3 lead toward the outside in the radius r , which radius r is directed with its direction of curvature opposite to the pressurized water-entry inlet opening 2, a conical water subdivider 6 with a segment shaped subdivision is formed in the connection region of the water guide channels 3 to the pressurized water-entry inlet opening 2.

supports that construction. *Id.* at 36.

At the time of the briefing, Laimer’s proposed construction was “the water guide channels approach one another but do not fully meet each other.” KEG urged that was not consistent with other limitations in the claim which provided that the innermost diameters of the channels come together at a point along the axis of the tool. *Id.*

Laimer did not provide any comments in his brief beyond the proposed construction - “the water guide channels approach one another but do not fully meet each other.” As noted above,

Laimer now proposes “the water guide channels come together but not in their entirety” as a construction.

4. Discussion

Beginning with the claim language, the disputed phrase is part of a larger limitation providing:

wherein the water guide channels partially converge into one another, wherein at least two of the water guide channels rest with an innermost point of a rearwardly disposed diameter at a center point on an axis of the tool frame and with an outermost point of said diameter rests at an outer diameter at the front end of the pressurized water-entry inlet opening

Thus, in addition to the disputed phrase, the limitation requires that “at least two of the water guide channels” meet the remainder of the claim language.

In the JCC Statement, KEG proposed that “the water guide channels rest with an innermost point of a rearwardly disposed diameter at a center point on an axis of the tool frame * * *” meant that “the innermost point of the water guide channels (a.k.a., channels) terminate with an innermost point along a central axis which includes a center point on an axis of the tool frame,” and that “* * * and with an outermost point of said diameter rests at an outer diameter at the front end of the pressurized water-entry inlet opening” meant “with an outermost point on an outer diameter within the pressurized water-entry inlet opening.” JCC Statement [Dkt. No. 62] at 21. Laimer contended in the JCC Statement that “[t]his language is unintelligible,” and the claim was invalid as being indefinite. *Id.* Laimer did not propose a construction. Laimer also did not propose a construction in his brief. Laimer’s Brief [Dkt. No. 65] at 37-38.

The “wherein at least two of the water guide channels rest * * *” portion of the limitation is not addressed, however, in the Second Revised Joint Claim Construction Chart. Thus, it is assumed that the parties no longer dispute the construction of that clause.

Fig. 2 of the '243 patent illustrates the following:

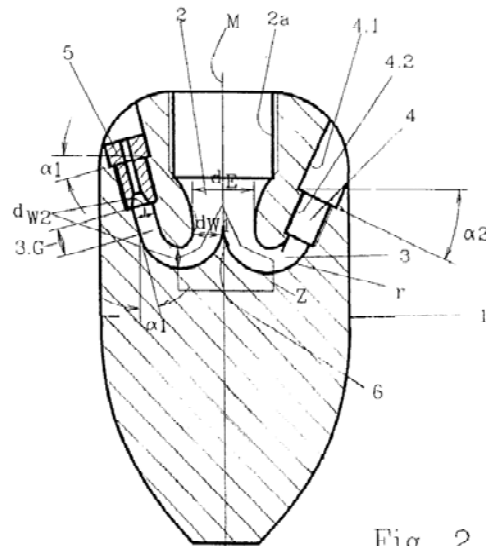


Fig. 2

The abstract explains:

A hydrodynamic tool for the cleaning of pipes and channels exhibits a pressurized water-entry inlet opening (2) connected to pressurized water-discharge outlet openings (4) through water guide channels (3). The water guide channels (3) are continuously connected to the pressurized water-entry inlet opening (2) with a hose connection (2a). The water guide channels (3) exhibit a largest possible deflection radius (r) and partially converge into one another. At least two water guide channels (3) rest with the innermost point of the diameter (d_{W1}) at the center point (M) and with their outermost point of the diameter (d_{W1}) at the outer diameter (d_E) of the pressurized water-entry inlet opening (2). The water guide channels (3), corresponding to the arrangement of the pressurized water-discharge outlet openings (4), are either merging into the end of the deflection radius (r) or into the straight line region (3.G) and in an angle (α) to the respective pressurized water-discharge outlet openings (4).

The specification explains that:

FIG. 2a is a sectional partial view (a top plan view) of a distribution cone along a section line Z according to FIG. 2;

FIG. 2b is a perspective view of the distribution cone according to FIG. 2a

'243 patent, col. 5, lines 64-67. Figs. 2a and 2b illustrate the following:

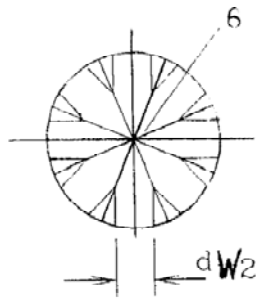


Fig. 2a

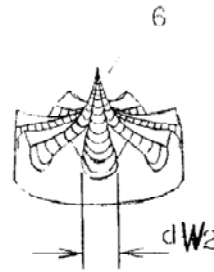


Fig. 2b

The specification explains that:

Since the water guide channels 3 start in the center of the pressurized water-entry inlet opening 2, since the water guide channels 3 join there into each other, and since the water guide channels 3 lead toward the outside in the radius r , which radius r is directed with its direction of curvature opposite to the pressurized water-entry inlet opening 2, a conical water subdivider 6 with a segment shaped subdivision is formed in the connection region of the water guide channels 3 to the pressurized water-entry inlet opening 2. This water subdivider 6 is illustrated in FIG. 2a in the sectional partial and top plan view according to FIG. 2. A perspective view is shown in FIG. 2b.

'243 patent, col. 9, lines 1-14.

When the specification in the portion quoted further above, and in the abstract, say that “[t]he water guide channels (3) * * * partially converge into one another,” Figs. 2a and 2b illustrate what was meant. In short, KEG is correct that Figs. 2a and 2b illustrate what was meant by “wherein the water guide channels partially converge into one another” in claim 1.

Indeed, the specification, under the heading “Brief Description of the Invention,” explains that: “The pressurized water-entry inlet opening is connected to the pressurized water-discharge outlet openings through respective water guide channels. The water guide channels partially converge into one another. At least two of the water guide channels rest with an innermost point of a rearwardly disposed diameter at a center point on an axis of the tool frame and with an outermost point of said diameter at an outer diameter at the front end of the pressurized water-entry inlet opening.” ‘243 patent, col. 3, lines 6-11.

Under the heading “Description of the Invention and Preferred Embodiment,” the specification explains that: “The water guide channels 3 exhibit a largest possible deflection radius r , continuously connect to the pressurized water-entry inlet opening 2, and partially converge into one another. At least two water guide channels 3 rest with the innermost point of their diameter d_{w1} at the center point M and with the outermost point of their diameter d_{w1} at the outer diameter d_E of the pressurized water-entry inlet opening 2.” ‘243 patent, col. 6, lines 25-32.

At the *Markman* hearing, Laimer presented the following slide:

Argument

- No ordinary meaning to one of ordinary skill in the art
- Channels cannot “partially” converge
- Dictionary definition of converge
 - 1. To tend toward or approach an intersecting point: lines that converge.
 - 2. To come together from different directions; meet: The avenues converge at a central square.

Laimer’s point was that “channels” either “converge” or they do not – they cannot “partially” converge.

KEG urged in its brief that “the term ‘partially’ means ‘less than the entirety,’ or ‘less than all’; and the term ‘converge’ means ‘to come together.’” KEG’s Brief [Dkt. No. 64] at 35. Putting those meanings together would result in “coming together less than entirely or less than all.” And, indeed, that is more or less what Laimer proposes as a construction, namely “the water guide channels come together but not in their entirety.”

However, the Federal Circuit *en banc* in *Phillips* emphasized that “claims ‘must be read in view of the specification, of which they are a part,’ ” and that “the specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’ ” *Phillips*, 415 F.3d at 1315. Among other reasons for that being so, the Federal Circuit explained that “our cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Id.* at 1316. In short, an inventor may act as his own lexicographer.

Here, the specification clearly explains, at several locations, that “[t]he water guide channels partially converge into one another.” There is no doubt that what was meant is illustrated in Figs. 2a and 2b. Thus, the inventors have illustrated what they meant by “partially converge.” Even if that does not entirely reflect the common understanding of “partially” and/or “converge,” the manner in which the inventor has used a term or phrase controls.

Furthermore, Laimer’s proposed construction, namely “the water guide channels come together but not in their entirety,” would potentially exclude the preferred embodiment. The drawing figures may be used to interpret the claims and determine the preferred embodiment. *See Primos, Inc. v. Hunter’s Specialties, Inc.*, 451 F.3d 841, 848 (Fed. Cir. 2006). A claim construction that excludes a preferred embodiment “is rarely the correct interpretation; such an interpretation requires highly persuasive evidentiary support.” *Modine Mfg. Co. v. Int’l Trade Comm’n*, 75 F.3d 1545, 1550 (Fed. Cir. 1996). “[I]t is unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way.” *Hoechst Celanese Corp. v. BP Chems. Ltd.*, 78 F.3d 1575, 1581 (Fed. Cir. 1996).

Accordingly, Laimer’s proposed construction is not recommended. KEG’s proposed construction is consistent with the specification and drawings. Although the master disagrees with KEG that its construction reflects the “ordinary meaning to one of ordinary skill in the art” in the abstract. However, the master agrees with KEG that its proposed construction reflects the meaning of the disputed phrase in the art in light of the specification and drawings.

5. Recommendation

The master recommends that the Court construe “wherein the water guide channels partially converge into one another” in claim 1 in the ‘243 patent to mean that “the channels are discrete channels at their respective discharge ends, but upstream they start out together at the center of the distribution chamber.”

G. “partially converge into one another” – ‘243 Patent, Claim 13

1. Disputed Term in Context of the Claim

Claim 13 with the disputed term emphasized, provides:

13. Hydrodynamic tool for cleaning of pipes and channels with a connection for a water hose as a pressurized water-entry inlet opening and pressurized water-discharge outlet openings on a side of the water connection, wherein the pressurized water-entry

inlet opening is connected to the pressurized water-discharge outlet openings with water guide channels in the shape of channels having a circular cross-section, and wherein discharge nozzles are screwable into the pressurized water-discharge outlet openings, characterized in that

the water guide channels (3) exhibit a largest possible deflection radius (r), continuously connect to the pressurized water-entry inlet opening (2), and partially converge into one another, wherein at least two water guide channels (3) rest with an innermost point of their diameter (d_{w1}) at the center point (M) and with an outermost point of their diameter (d_{w1}) at an outer diameter (d_E) of the pressurized water-entry inlet opening (2),

wherein the direction of curvature of the deflection radius (r) is opposite to the pressurized water-entry inlet opening (2),

wherein the water guide channels (3) corresponding to the arrangement of the pressurized water-discharge outlet openings (4) are either merging with the end of their deflection radius (r) or with a linear region (3.G) and at an angle (α) over into the respective pressurized water-discharge outlet openings (4), wherein unsteady cross-sectional changes toward the discharge nozzle (5) are avoided. (emphasis added)

2. The Parties Proposed Constructions

The parties' proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
'243, claim 13	partially converge into one another	<p>Use ordinary meaning to one of ordinary skill in the art</p> <p>Brief: p. 42</p> <p>The principal difference between the parties' proposed constructions is: the arrangement of the individual channels relative to each other.</p> <p>The Court's resolution of that difference is necessary because: Defendants' construction introduces ambiguity because "fully meet" suggests two lines, planes, or surfaces intersecting, whereas in this particular case we are referring to a volume space.</p>	<p>The water guide channels come together but not in their entirety</p> <p>Brief: p. 47</p> <p>The principal difference between the parties' proposed construction is: Are the channels discrete and how do they merge?</p> <p>The Court's resolution of that difference is necessary because the construction of this clause is determinative of infringement.</p>
Second Revised Joint Claim Construction Chart at 10			

3. The Parties' Arguments

KEG urges that “[t]he terms of this phrase should be construed in the same manner as the similar terms in claim 1 of the ‘243 patent are construed.” KEG’s Brief [Dkt. No. 64] at 42. Laimer’s Brief urges “Defendant proposed that the phrase ‘partially converge into one another’ should be given its ordinary meaning.” Laimer’s Brief [Dkt. No. 65] at 47. However, in the Second Revised Joint Claim Construction Chart, Laimer proposes “[t]he water guide channels come together but not in their entirety.”

4. Discussion

The foregoing discussion in connection with claim 1 of the ‘243 patent and the similar limitation therein applies here as well.

5. Recommendation

The master recommends that the Court construe “partially converge into one another” in claim 13 in the ‘243 patent to mean “the channels are discrete channels at their respective discharge ends, but upstream they start out together at the center of the distribution chamber.”

H. “wherein at least two water guide channels (3) rest with an innermost point of their diameter (d_{w1}) at the center point (M) and with an outermost point of their diameter (d_{w1}) at an outer diameter (d_E) of the pressurized water-entry inlet opening (2)” – ‘243 Patent, Claim 13

1. The Parties Proposed Constructions

The parties’ have advised as follows:

Patent	Claim Term	KEG	Laimer
‘243, claim 13	wherein at least two water guide channels (3) rest with an innermost point of their diameter (d_{w1}) at the center point (M) and with an outermost point of their diameter (d_{w1}) at an outer diameter (d_E) of the pressurized water-entry inlet opening (2)	The parties have agreed that this phrase does not require construction.	The parties have agreed that this phrase does not require construction.
Second Revised Joint Claim Construction Chart at 10			

2. Recommendation

In light of the parties' agreement, no further construction is necessary.

I. "wherein unsteady cross-sectional changes of the cross-section of the water guide channels in a direction toward the discharge nozzle are absent" – '243 Patent, Claim 1

1. Disputed Term in Context of the Claim

Claim 1 of the '243 patent calls for (with the disputed phrase emphasized):

1. A hydrodynamic tool for cleaning of pipes and channels comprising

a tool frame having a front side and having a rear side;

a pressurized water-entry inlet opening disposed at the rear side of the tool frame and furnishing a connection for a water hose;

pressurized water-discharge outlet openings disposed at the rear side of the tool frame and furnishing a connection for discharge nozzles, wherein the discharge nozzles are screwable into the pressurized water-discharge outlet openings;

water guide channels in the shape of channels having a circular cross-section, wherein the pressurized water-entry inlet opening is connected to the pressurized water-discharge outlet openings through respective water guide channels;

wherein the water guide channels partially converge into one another, wherein at least two of the water guide channels rest with an innermost point of a rearwardly disposed diameter at a center point on an axis of the tool frame and with an outermost point of said diameter rests at an outer diameter at the front end of the pressurized water-entry inlet opening;

wherein a distance between a frontmost saddle point of an inner wall of a respective water guide channel and an opposite inner wall point of the water guide channel, disposed along an axially parallel straight line, is smaller than a thickness of a wall between the pressurized water-entry inlet opening and a respective pressurized water-discharge outlet opening;

wherein the water guide channels, corresponding to the respective ones of the pressurized water-discharge outlet openings, are merging into the respective pressurized water-discharge outlet openings, wherein unsteady cross-sectional changes of the cross-section of the water guide channels in a direction toward the discharge nozzle are absent.

2. The Parties Proposed Constructions

The parties' proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
'243, claim 1	wherein unsteady cross-sectional changes of the cross-section of the water guide channels in a direction toward the discharge nozzle are absent	<p>"in the vicinity of the discharge nozzles, the cross section of the water guide channels is continuous"</p> <p>Brief: p. 37</p>	Defendants maintain that this phrase does not require construction.
Second Revised Joint Claim Construction Chart at 11			

3. The Parties' Arguments

Exhibit C-14 to KEG's Brief illustrates the following:

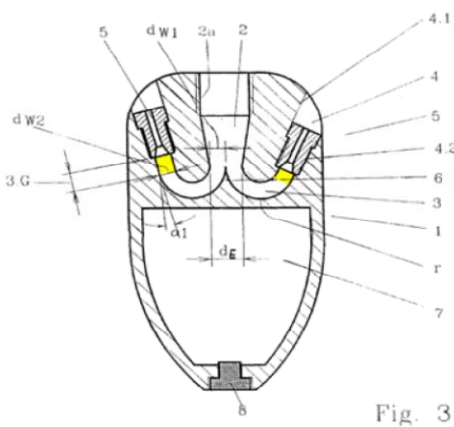


Fig. 3

KEG says that "in the vicinity of the discharge nozzles, the cross section of the water guide channels is generally continuous. The specification describes how '[u]nsteady cross-sectional changes toward the discharge nozzle are avoided.' Ex. B: col. 6, line 39-40. FIGS. 2, 3, and 6 unambiguously illustrate how the channels (reference 3) are of a generally continuous cross-section once they enter the region within the vicinity of the discharge nozzles." KEG's Brief [Dkt. No. 64] at 37-38.

In the JCC, Laimer contended "[t]his language is unintelligible. The following is not understood: 'discharge nozzle' (singular)." JCC Statement [Dkt. No. 62] at 23. Laimer further proposed the following construction - "unsteady cross-sectional changes of the water channels in a direction toward the discharge nozzle (singular) are completely absent and do not exist." *Id.*

KEG urged that “Defendants’ interpretation * * * incorrectly refers to ‘discharge nozzle’ in the singular, without recognizing it is clearly a typo (because there are multiple discharge nozzles shown and claimed). Also, the claim recites ‘are absent,’ not ‘are completely absent and do not exist.’ Defendants’ proposed constructions are not consistent with the claim language.” KEG’s Brief [Dkt. No. 64] at 38.

Laimer now contends in the Second Revised Joint Claim Construction Chart that no construction is necessary.

4. Discussion

Although Laimer now contends that no construction is needed, given the disagreement in the JCC Statement, it seems best to construe the phrase and remove any potential doubts.

KEG’s proposed construction is consistent with the claim language, the specification and the drawings.

5. Recommendation

The master recommends that the Court construe “wherein unsteady cross-sectional changes of the cross-section of the water guide channels in a direction toward the discharge nozzle are absent” in claim 1 of the ‘243 patent to mean “in the vicinity of the discharge nozzles, the cross section of the water guide channels is continuous.”

J. “wherein the water guide channels (3) corresponding to the arrangement of the pressurized water-discharge outlet openings (4) are either merging with the end of their deflection radius (r) or with a linear region (3.G) and at an angle (α) over into the respective pressurized water-discharge outlet openings (4)” – ‘243 Patent, Claim 13

1. The Parties Proposed Constructions

The parties’ have advised as follows:

Patent	Claim Term	KEG	Laimer
‘243, claim 13	wherein the water guide channels (3) corresponding to the arrangement of the pressurized water-discharge outlet openings (4) are either merging with the end	The parties have agreed that this phrase does not require construction.	The parties have agreed that this phrase does not require construction.

Patent	Claim Term	KEG	Laimer
	of their deflection radius (r) or with a linear region (3.G) and at an angle (α) over into the respective pressurized water-discharge outlet openings (4)		
Second Revised Joint Claim Construction Chart at 11-12			

2. Recommendation

In light of the parties' agreement, no further construction is necessary.

K. "wherein the linear region (3.G) of the water guide channels (3) or, respectively, the pressurized water-discharge outlet openings (4) merge substantially tangentially to the deflection radius (r)" – '243 Patent, Claim 14

1. Disputed Term in Context of the Claim

Claim 14 of the '243 patent calls for (with disputed phrase emphasized):

14. The hydrodynamic tool according to claim 13,

wherein the linear region (3.G) of the water guide channels (3) or, respectively, the pressurized water-discharge outlet openings (4) merge substantially tangentially to the deflection radius (r);

wherein the pressurized water-entry inlet opening (2) in case a hose connection (2a) is larger than $2 \times d_{w1}$, narrows up to the diameter $2 \times d_{w1}$ preferably in a funnel shape.

2. The Parties Proposed Constructions

The parties' proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
'243, claim 14	wherein the linear region (3.G) of the water guide channels (3) or, respectively, the pressurized water-discharge outlet openings (4) merge substantially tangentially to the deflection radius (r)	<p>No construction is needed.</p> <p>The Plaintiffs' position is that the Court needs to determine whether the claim term requires, in the case where the water guide channels have a linear portion, does the linear portion of the water guide channel merge tangentially or</p>	The claim is indefinite. In the alternative: the linear portion of the water guide channel merges tangentially with the semi-circular deflection radius; if there is no linear portion of the water guide channel, then the discharge outlet opening merges tangentially with the semi-circular deflection radius.

Patent	Claim Term	KEG	Laimer
		substantially tangentially with the deflection radius, and whether, in the case where there is no linear portion, does the discharge outlet opening merge tangentially or substantially tangentially with the deflection radius, so the fact finder can compare the Accused Instrumentalities to the claim language.	<p>Brief: pp. 52-54</p> <p>The principal difference between the parties' proposed construction is the meaning of the claim, including Plaintiffs' use of "near" including the definition of "substantially tangentially to the deflection radius."</p> <p>The Court's resolution of that difference is necessary because the claim language is indefinite and therefore Defendants cannot determine what the patentee is entitled to exclude others from making, using, or selling</p>
Second Revised Joint Claim Construction Chart at 12-13			

3. The Parties' Arguments

Exhibit C-20 to KEG's Brief illustrates the following:

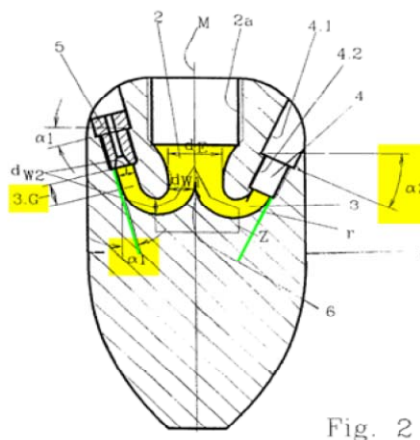


Fig. 2

Although KEG now says that no construction is necessary, in the JCC Statement KEG proposed that the clause should be construed to mean “the linear portion of the water guide channel (a.k.a. channel) near the discharge outlet opening merges substantially tangentially with semi-circular portion of the water guide channel; if there is no linear portion of the water guide channel, then the

discharge outlet opening merges substantially tangentially with the semi-circular portion of the water guide channel.” JCC Statement [Dkt. No. 62] at 38.

Laimer contended: “This language is unintelligible. The following is not understood: ‘the linear region (3.G) of the water guide channels (3) or, respectively, the pressurized water-discharge outlet openings (4) merge’, ‘substantially tangentially’, ‘substantially tangentially to the deflection radius’, and ‘respectively’. How is ‘or’ to be understood, to include both elements or one element, or the elements alternatively?” *Id.* Laimer contended that the clause rendered the claim indefinite and therefore invalid. *See also* Laimer’s Brief [Dkt. No. 65] at 52-53.

Laimer also proposed that the clause should be construed to mean “the linear region of the water guide channels or (but necessarily so), respectively, the outlet openings merge substantially tangentially to the deflection radius (r).” JCC Statement [Dkt. No. 62] at 39. *See also*, Laimer’s Brief [Dkt. No. 65] at 52-53.

KEG again urged in its brief that the clause means “that the linear portion of the water guide channel near the discharge outlet opening merges substantially tangentially with semicircular portion of the water guide channel; in the case where there is no linear portion of the water guide channel, then the discharge outlet opening merges substantially tangentially with the semi-circular portion of the water guide channel.” KEG’s Brief [Dkt. No. 64] at 48.

As KEG points out, the specification explains that “[t]he linear region 3.G of the water guide channels 3 or, respectively, the pressurized water-discharge outlet openings 4 can merge substantially tangentially to the deflection radius r.” ‘243 patent, col. 6, lines 41-44.

KEG also correctly points out that “FIGS. 2 and 3 show the tangential merger of the deflection radius (reference r) with either the linear portion of the channel (reference 3.G) or, if there is no linear portion, the outlet opening (reference 4.2) (on the left side of the figures is the example of what the claim refers to as ‘the linear region’ (3.G) connection type; and on the right side of the figures is what the claim refers to as the ‘pressurized water-discharge outlet opening’ (4.2) connection type). KEG’s Brief [Dkt. No. 64] at 48.

4. Discussion

Laimer urges that there is no “ordinary and plain meaning” for either the overall phrase or clause, and internal phrases such as “merge substantially tangentially to the deflection radius (r)”

have no “ordinary and plain meanings.” Laimer’s Brief [Dkt. No. 65] at 52. As already noted above, that argument is not persuasive. Yet again, the rule has long been that “simply because a phrase as a whole lacks a common meaning does not compel a court to abandon its quest for a common meaning and disregard the established meanings of the individual words.” *Altiris*, 318 F.3d at 1372. The individual words used in the disputed phrase all have ordinary and plain meanings, which collectively make the meaning of the phrase clear.

Laimer also argues that the word “substantially” renders the claim invalid as being indefinite because one of ordinary skill in the art would not know what “substantially tangentially” means. Laimer’s Brief [Dkt. No. 65] at 53. That argument is likewise unpersuasive.

Neither claim 14 nor KEG’s proposed construction renders claim 14 indefinite under § 112(2), and therefore invalid. As discussed above, the Federal Circuit has advised that “[t]his court has repeatedly confirmed that relative terms such as ‘substantially’ do not render patent claims so unclear as to prevent a person of skill in the art from ascertaining the scope of the claim.” *Deere & Co. v. Bush Hog, LLC*, ____ F.3d at _____. As noted above, “substantially” and similar words of approximation such as “about” are frequently used in patent claims. *See Andrew Corp.*, 847 F.2d at 821 (“[t]he criticized words [‘approach each other,’ ‘close to,’ ‘substantially equal,’ and ‘closely approximate’] are ubiquitous in patent claims. Such usages, when serving reasonably to describe the claimed subject matter to those of skill in the field of the invention, and to distinguish the claimed subject matter from the prior art, have been accepted in patent examination and upheld by the courts.”)

The word “substantially” in “substantially tangentially” merely avoids limiting the claim to an arrangement that is 100% strictly “tangential.” That does not render a claim indefinite (or a proposed claim construction ambiguous). *See Pall Corp.*, 66 F.3d at 1217 (“[t]he use of the word ‘about,’ avoids a strict numerical boundary to the specified parameter. Its range must be interpreted in its technologic and stylistic context.”); *Ecolab*, 264 F.3d at 1367 (“like the term ‘about,’ the term ‘substantially’ is a descriptive term commonly used in patent claims to ‘avoid a strict numerical boundary to the specified parameter;’” “‘substantially’ avoids the strict 100% nonuniformity boundary.”).

When read in light of the specification, it is clear that in the phrase “substantially tangentially” only avoids a strict requirement for being 100% “tangential.” Although “substantially”

introduces some degree of variation from being strictly “tangential,” again, “a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement.” *Invitrogen*, 424 F.3d at 1384 (quotation marks omitted). “[I]f the language is as precise as the subject matter permits, the courts can demand no more.” *Shatterproof Glass*, 758 F.2d at 624. *See also*, *BJ Services* 338 F.3d at 1372 (“[L]ike enablement, definiteness, too, is amenable to resolution by the jury where the issues are factual in nature.”).

Laimer also contends that the word “or” renders the claim indefinite and invalid. Laimer’s Brief [Dkt. No. 65] at 53. Although the claim language may not be exemplary or pass an English grammar examination, the meaning of the disputed phrase/clause is sufficiently clear when read in conjunction with the specification and drawings to avoid a finding of invalidity.

The specification explains that “[t]he water guide channels 3 corresponding to the arrangement of the pressurized water-discharge outlet openings 4 are either merging with the end of their deflection radius r or with a linear region 3.G and at an angle α over into the respective pressurized water-discharge outlet openings 4.” ‘243 patent, col. 6, lines 34-39. Parent claim 13 similarly calls for “the water guide channels (3) corresponding to the arrangement of the pressurized water-discharge outlet openings (4) are either merging with the end of their deflection radius (r) or with a linear region (3.G) and at an angle (α) over into the respective pressurized water-discharge outlet openings (4).” Thus, when dependent claim 14 refers to “wherein the linear region (3.G) of the water guide channels (3) or, respectively, the pressurized water-discharge outlet openings (4)” that is simply accounting for the option of claim 13 whether there is a linear portion of the water guide channel, or not.

5. Recommendation

KEG, in the Second Revised Joint Claim Construction Chart, first says that “[n]o construction is needed,” but then says that “[t]he Plaintiffs’ position is that the Court needs to determine whether the claim term requires, * * *” which actually requires the Court to construe the claim.

Accordingly, the master recommends that the Court construe “wherein the linear region (3.G) of the water guide channels (3) or, respectively, the pressurized water-discharge outlet openings (4) merge substantially tangentially to the deflection radius (r)” in claim 14 of the ‘243 patent to mean “the linear portion of the water guide channel near the discharge outlet opening

merges substantially tangentially with a semi-circular portion of the water guide channel; if there is no linear portion of the water guide channel, then the discharge outlet opening merges substantially tangentially with the semi-circular portion of the water guide channel.”

L. “water guide channels in the shape of channels having a circular cross-section” – ‘243 Patent, Claims 1 and 13

1. Disputed Term in Context of the Claims

Claim 1 of the ‘243 patent calls for (with the disputed phrase emphasized):

1. A hydrodynamic tool for cleaning of pipes and channels comprising
 - a tool frame having a front side and having a rear side;
 - a pressurized water-entry inlet opening disposed at the rear side of the tool frame and furnishing a connection for a water hose;
 - pressurized water-discharge outlet openings disposed at the rear side of the tool frame and furnishing a connection for discharge nozzles, wherein the discharge nozzles are screwable into the pressurized water-discharge outlet openings;
 - water guide channels in the shape of channels having a circular cross-section, wherein the pressurized water-entry inlet opening is connected to the pressurized water-discharge outlet openings through respective water guide channels;
 - wherein the water guide channels partially converge into one another, wherein at least two of the water guide channels rest with an innermost point of a rearwardly disposed diameter at a center point on an axis of the tool frame and with an outermost point of said diameter rests at an outer diameter at the front end of the pressurized water-entry inlet opening;
 - wherein a distance between a frontmost saddle point of an inner wall of a respective water guide channel and an opposite inner wall point of the water guide channel, disposed along an axially parallel straight line, is smaller than a thickness of a wall between the pressurized water-entry inlet opening and a respective pressurized water-discharge outlet opening;
 - wherein the water guide channels, corresponding to the respective ones of the pressurized water-discharge outlet openings, are merging into the respective pressurized water-discharge outlet openings, wherein unsteady cross-sectional changes of the cross-section of the water guide channels in a direction toward the discharge nozzle are absent.

Claim 13 with the disputed term emphasized, provides:

13. Hydrodynamic tool for cleaning of pipes and channels with a connection for a water hose as a pressurized water-entry inlet opening and pressurized water-discharge

outlet openings on a side of the water connection, wherein the pressurized water-entry inlet opening is connected to the pressurized water-discharge outlet openings with water guide channels in the shape of channels having a circular cross-section, and wherein discharge nozzles are screwable into the pressurized water-discharge outlet openings, characterized in that

the water guide channels (3) exhibit a largest possible deflection radius (r), continuously connect to the pressurized water-entry inlet opening (2), and partially converge into one another, wherein at least two water guide channels (3) rest with an innermost point of their diameter (d_{w1}) at the center point (M) and with an outermost point of their diameter (d_{w1}) at an outer diameter (d_E) of the pressurized water-entry inlet opening (2),

wherein the direction of curvature of the deflection radius (r) is opposite to the pressurized water-entry inlet opening (2),

wherein the water guide channels (3) corresponding to the arrangement of the pressurized water-discharge outlet openings (4) are either merging with the end of their deflection radius (r) or with a linear region (3.G) and at an angle (α) over into the respective pressurized water-discharge outlet openings (4), wherein unsteady cross-sectional changes toward the discharge nozzle (5) are avoided.

2. The Parties Proposed Constructions

The parties' proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
'243, claims 1, 13	water guide channels in the shape of channels having a circular cross-section	<p>"channels that lead from the water-discharge openings to the water-entry inlet opening thereby connecting the inlet and outlet(s); 'a circular cross section,' is open to other cross-section shapes"</p> <p>Brief: p. 42</p> <p>The principal difference between the parties' proposed constructions is: the cross-sectional shape of the water guide channels along its length.</p> <p>The Court's resolution of that difference is necessary because: Defendants' construction introduces the limitation "not some other</p>	<p>"the water guide channels are circular in cross section"</p> <p>Opening Brief: pp. 35-37 Response Brief: pp. 12-22</p> <p>The principal difference between the parties' proposed construction is what the shape of the water guide channels is.</p> <p>The Court's resolution of that difference is necessary because the claim language is indefinite and therefore Defendants cannot determine what the patentee is entitled to exclude others from making, using, or selling.</p>

Patent	Claim Term	KEG	Laimer
		shape”/”not in any other cross sectional shape” into the claim	
Second Revised Joint Claim Construction Chart at 13			

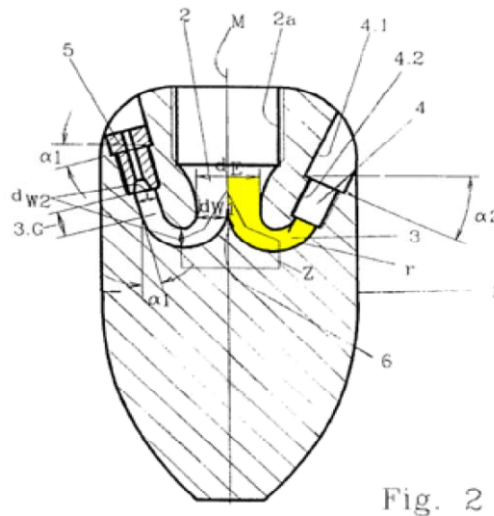
3. The Core Disagreement

The fundamental or core disagreement is whether the water guide channels must have “circular cross-section,” or, as KEG urges, whether the claim language is “open to other cross-section shapes”

4. The Parties' Arguments

a) KEG's Arguments

Exhibit C-10 to KEG's Brief illustrates the following:



KEG urges that the disputed phrase “describes the shape of the water guide channels, which are the channels that lead from the water-discharge openings to the water-entry inlet opening thereby connecting the inlet and outlets. FIGS. 2, 3, and 6, and the accompanying description of those figures, clearly illustrate the water guide channels (reference 3) which connect the entry opening to the outlet openings. The specification states that ‘[t]he water is led through channels (tubing) in a large radius to the pressurized water-discharge outlet openings.’ Ex. B: col. 5, lines 31- 32.” KEG’s Brief [Dkt. No. 64] at 31.

Laimer's originally proposed construction was "the water guide channels are circular in cross section, not some other shape." JCC Statement [Dkt. No. 62] at 19. KEG argued that construction was "not consistent with the specification, which does not reject noncircular shapes." KEG's Brief [Dkt. No. 64] at 31.

KEG urges that a circular cross-section is simply a preferred embodiment, citing the '243 patent, col. 7, lines 47-49, providing, in greater context:

The guide channel 3 can have a tubular shape with a smooth surface. The tube can decrease in open diameter when going from the end of the guide channel, disposed near the pressurized water-entry inlet opening 2, toward the pressurized water-discharge outlet opening 4 or can exhibit a constant cross-sectional size. The decrease in cross-section can be up to about 60 percent and is preferably less than 50 percent. The cross-section of the guide channel 3 is preferably of circular shape.

'243 patent, col. 7, lines 40-49.

KEG, citing to depositions of its expert witness, Ex. D to KEG's Brief: Garriss Dep. 99:18-101:12, Jan. 6, 2012; Garriss Dep. 154:12-155:14, Oct. 10, 2008, urges that "[i]ndeed, an inspection of the figures reveals that there cannot be a perfectly circular cross-section over the entire length of the water guide channel; thus, the claim term must be open to having other than circular cross-sections." KEG's Brief [Dkt. No. 64] at 31-32. In particular, KEG points to Garriss' testimony that "[i]n other words, it doesn't have to be continuously circular throughout the entire channel.... And as long as it had a circular cross-section at some point, then the claim limitation is met. I would also -- one other point that I don't think I brought out here is that if you look at the preferred embodiment and as depicted in figure 2 in the patent, the -- what is shown is not circular throughout the entire trajectory either." *Id.* at 32.

KEG contends that when the claim calls for "a circular cross-section" (emphasis on "a") that means that there may be different cross-sections because "a" in patent parlance means "one or more." Specifically, KEG urges that "Defendants are ignoring the plain language of the claim that says 'a circular cross section,' which is open to the possibility that the water guide channels can have additional non-circular cross-section shapes in addition to having at least one portion being circular." *Id.* at 32. KEG relies on the holding in *KJC Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000) that "[t]his court has repeatedly emphasized that an indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in openended claims containing the

transitional phrase ‘comprising.’ That ‘a’ or ‘an’ can mean ‘one or more’ is best described as a rule, rather than merely as a presumption or even a convention.”).

KEG further argues that one of ordinary skill in the art would not read “a circular cross section” to mean a perfectly circular shape because the process for making the tools does not result in a perfectly circular shape, namely “the claim could not be limited to just perfectly circular shapes, since one of ordinary skill in the art would understand that the casting process used for creating the tools allows for some distortion within the circular shape,” citing testimony by its expert, Ex. D: Garris Dep. 100:4-11, Jan. 6, 2012; Garris Dep. 154:5-10, Oct. 14, 2008. *Id.* at 32-33.

KEG urges that “[a]dopting Defendants’ view of the claims * * * would effectively rewrite the claims as ‘water guide channels in the shape of circular cross section channels,’ which covers just the preferred embodiment of the invention.” *Id.* at 33. KEG adds that such “construction is inconsistent with the language of the claim, which says that the entire channel is not in the shape of a circular cross section, just a portion of the water guide channel. The reasonable interpretation, in light of the totality of intrinsic and extrinsic evidence, is that the claims are limited to water guide channels in which a portion is circular.” *Id.* at 33 citing *In re Marosi*, 710 F.2d 799, 802 (Fed. Cir. 1983) (“Claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their ‘broadest reasonable interpretation’”) (quoting *In re Okunawa*, 537 F.2d 545, 548, (C.C.P.A. 1976)) (emphasis in original).

KEG also argues other cross-sectional shapes have not been disavowed or disclaimed: “Defendants cannot point to a single instance in the prosecution history that remotely suggests that the inventors intended to disclaim noncircular water guide channels, or to require that the entire channel be circular from end to end. There is no evidence of prosecution disclaimer (limiting claim scope because of statements made by the patentee in prosecution) or argument-based prosecution history estoppel (limiting the scope of the doctrine of equivalents because of statements made by the patentee in prosecution). For there to be a disavowal of claim scope, some specific actions or statements made during prosecution must not only be evident, but clear and unmistakable. *See Cordis Corp. v. Medtronic AVE Inc.*, 511 F.3d 1157, 1177 (Fed. Cir. 2008). That is, in order to constitute binding surrenders of claim scope, there must be statements in the record such that a competitor would reasonably believe that the applicant had surrendered the relevant subject matter. *Id.* In this

case, there are no statements in the record establishing any disavowal of any scope of the water guide channels.” KEG’s Brief [Dkt. No. 64] at 34-35.

KEG lastly argues that limiting the claims to a “perfectly circular cross section” would effectively eviscerate the patent “because there is no manufacturing technique that can make perfectly circular water guide channels from end to end using a casting or other process. Ex. D: Garris Dep. 157:8-10, Oct. 14, 2008. Were the Court to adopt Defendants’ construction, anyone who attempted to make channels having a perfect circular cross section would find variation in the cross section that would, in effect, take the product outside the reach of the claims. Thus, Defendants’ position, which is contrary to both the plain language of the claim and all of the intrinsic evidence of record, should be dismissed out of hand.” KEG’s Brief [Dkt. No. 64] at 35.

In its Response, KEG repeats the same arguments, KEG’s Response [Dkt. No. 66] at 16-20, adding that “‘Defendants’ insistence that the claims be limited to circular water-guide channels and ‘not some other shape’ is a not-so-veiled attempt to foreclose Plaintiffs’ use of the doctrine of equivalents in Plaintiffs’ Infringement Contentions.” *Id.* at 20.

b) Laimer’s Arguments

Laimer argues that the claims plainly call for “water guide channels in the shape of channels having a circular cross-section.” Laimer notes that the specification also refers to water guide channels having a “circular cross section,” for example col. 6, line 20, col. 7, lines 40-41, and lines 47-49, col. 3, line 1, col. 4, line 7, and col. 6, line 1. Laimer’s Brief [Dkt. No. 65] at 35. Laimer urges that “the patentee’s consistent reference to circular cross sections and the obvious advantage of smooth water flow provided by the circular cross section, the claims of the 243 Patent must be limited to this circular shaped channel.” *Id.* at 36 (Laimer’s emphasis).

Laimer contends Figs. 2, 3 and 6 all illustrate water guide channels having circular cross sections, and asserts that “[n]one of the figures depicts a cross section of any other shape and therefore suggests that the patentee intended to limit the cross section to a circular shape.” *Id.*

Pointing to the specification at col. 7, lines 40-41 and lines 47-49 (namely that quoted above in conjunction with KEG’s arguments), Laimer argues that “[a]lthough the claim language and the patent specification language do not state that the shape of the cross-section must be circular, the language does however suggest that the patentee considered other shapes and ultimately preferred a circular cross section. The fact that the patentee acknowledges and considers other possible cross

sectional shapes but ultimately chose [*sic*] and prefers a circular cross section is important. This consideration of other shapes and ultimate decision to prefer a circular cross section locks the patent in a circular cross section.” *Id.*

In his responsive brief, Laimer urges that the plain language of the claim means that the water guide channels are limited to ones having a “circular cross section.” Laimer’s Response [Dkt. No. 67] at 12-15.

Laimer responds to KEG’s argument *vis-à-vis* “a” meaning “one or more” pointing out that in *KJC Corp.* the question was whether the claim language covered one chamber or one or more chambers, whereas here the question is not the number of water guide channels. Laimer urges that “[t]he *Kinetic*’s court’s construction of ‘a’ to mean ‘one or more’ in the context of a number of chambers does not signify that ‘a’ must be construed in every instance as ‘one or more,’ particularly when the issues is not the number of objects but rather the type of cross-sectional shape.” *Id.* at 16.

Laimer further argues that KEG’s construction takes the claim language out of context and fails to construe the disputed phrase in light of the surrounding claim language. Laimer notes that both claims 1 and 13 conclude with the provision that “unsteady cross-sectional changes of the cross-section of the water guide channels in a direction toward the discharge nozzles are absent,” and “unsteady cross-sectional changes toward the discharge nozzle (5) are avoided.” *Id.* at 17.

Laimer urges that “is not understood how any cross-sectional shape other than circular could provide these results.” *Id.* at 18. Laimer urges that those provisions are indefinite, but could mean only one of two things: “(1) the shape of the water guide channels’ cross-section remains steady and constant or (2) the diameter of the water guide channels remains steady and constant.” *Id.* Laimer argues that “[u]nder either meaning [the above provisions of claims 1 and 13] must be construed to mean that the water guide channels are circular in cross-section, not some other shape.” *Id.* at 18.

Laimer also argues that construing the disputed phrase according to KEG’s proposed constructions is “illogical” and would lead to a decreased efficiency of the nozzle. *Id.* at 19. Laimer argues that “different cross-sectional shapes used in a water guide channel would cause more turbulence within the water guide channels, cause loss of efficiency and velocity.” *Id.*

Laimer lastly argues that the possibility that the water guide channels cannot be perfectly circular does not support the argument that the water guide channels can be of a different cross-sectional shape.” *Id.* at 21. Laimer says that “Defendants have not construed ‘a circular cross-

section’ to mean ‘perfectly circular’ but rather have construed the term to mean that no other cross-sectional shapes are covered by Claim 1.”

5. Discussion

The master concludes that “water guide channels in the shape of channels having a circular cross-section” in claims 1 and 13 of the ‘243 patent means exactly what it says. Laimer’s proposed construction, namely “the water guide channels are circular in cross section” in the Second Revised Joint Claim Construction Chart is correct.

The Federal Circuit “repeatedly and consistently has recognized that courts may not redraft claims.” *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004) (and cases cited therein). “[W]e construe the claim as written, not as the patentees wish they had written it.” *Id.* That is so even if the result is nonsensical. For example, in *Chef America*, the claim called for “heating the resulting batter-coated dough to a temperature in the range of about 400 degrees F. to 850 degrees F.” The patentee urged that meant the temperature of the oven, not the dough *per se*, because heating the dough to that temperature would not result in “dough products suitable for freezing and finish cooking to a light, flaky, crispy texture,” namely the object of the invention, but rather would result in a “charcoal briquet.”

Nevertheless, the Federal Circuit was not persuaded: Even “a nonsensical result does not require the court to redraft the claims of the *** patent.” 358 F.3d at 1374, quoting *Process Control Corp. v. Hydrexclaim Corp.*, 190 F.3d 1350, 1357 (Fed. Cir. 1999). “Where, as here, the claim is susceptible to only one reasonable construction, the canons of claim construction cited by [Chef America] are inapposite, and we must construe the claims based on the patentee’s version of the claim as he himself drafted it.” 358 F.3d at 1374. As the district court had held in *Chef America*, “[i]t is the job of the patentee, and not the court, to write patents carefully and consistently.” 358 F.3d at 1373.

Chef America, as well as the preceding and succeeding cases applying that principal, is subject to the proviso that “the claim is susceptible to only one reasonable construction.” Thus, if the patentee can show that the claim is susceptible to more than one reasonable construction, then a court is not “redrafting” a claim contrary to *Chef America*, as well its heritage and progeny cases, but rather is just “construing” the claim.

In *Chef America*, the Federal Circuit commented that “heating the resulting batter-coated dough to a temperature in the range of about 400 degrees F. to 850 degrees F,” were “ordinary, simple English words whose meaning is clear and unquestionable. There is no indication that their use in this particular conjunction changes their meaning. They mean exactly what they say. The dough is to be heated to the specified temperature. Nothing even remotely suggests that what is to be heated is not the dough but the air inside the oven in which the heating takes place.” 358 F.3d at 1373.

Similarly, here “water guide channels in the shape of channels having a circular cross-section” are “ordinary, simple English words whose meaning is clear and unquestionable. There is no indication that their use in this particular conjunction changes their meaning. They mean exactly what they say.” 358 F.3d at 1373.

KEG, citing the ‘243 patent, col. 7, lines 47-49, providing, in greater context:

The guide channel 3 can have a tubular shape with a smooth surface. The tube can decrease in open diameter when going from the end of the guide channel, disposed near the pressurized water-entry inlet opening 2, toward the pressurized water-discharge outlet opening 4 or can exhibit a constant cross-sectional size. The decrease in cross-section can be up to about 60 percent and is preferably less than 50 percent. The cross-section of the guide channel 3 is preferably of circular shape.

‘243 patent, col. 7, lines 40-49, argues that the “circular shape” is only a preferred embodiment. Although it is true that claims are not necessarily limited to the preferred embodiment, even if that is only embodiment disclosed, that does not mean that claims cannot be construed according to their express language as being limited to the preferred embodiment.

Here, the specification undoubtedly says that “[t]he cross-section of the guide channel 3 is preferably of circular shape,” but the language of claims 1 and 13 also clearly says, without reservation or equivocation, that the scope of those claims is limited to “water guide channels in the shape of channels having a circular cross-section.” If the patentee had wanted the claim language to track the specification, the patentee could have clearly drafted the claims to call for “water guide channels” without additionally limiting those channels to being “in the shape of channels having a circular cross-section.” But the patentee did not.

A number of Laimer’s arguments focus on “why” the patentee did not. Those arguments are, in the master’s view, largely based on speculation and are mostly irrelevant. The principal factor

is how the patentee chose to draft his/her claims – namely the “objective” factor. There may have been one or more “subjective” factors leading a patentee to draft his/her claims as they appear in an issued patent, but trying to discern “why” a patentee may have chosen to claim his/her invention in a particular way is largely based on “guessing” absent firm proof of the same. Most importantly, the patentee, for whatever reason, here chose to clearly limit the “water guide channels” in the subject claims to “having a circular cross-section.”

KEG’s reliance on its expert’s view that “as long as it had a circular cross-section at some point, then the claim limitation is met,” is not well-taken. That is not what the claim limitation says – nor is that construction reasonably inferable from the specification. Once again, the specification plainly says that “[t]he cross-section of the guide channel 3 is preferably of circular shape,” thus clearly giving a preference for a “circular shape” but by no means excluding other possible shapes. However, the “claims,” not the specification define the patentee’s property right. Here, the language of claims 1 and 13 that the patentee chose also plainly says that the scope of those claims is limited to “water guide channels in the shape of channels having a circular cross-section.”

KEG’s argument, based on the testimony of its expert witness, that “[i]ndeed, an inspection of the figures reveals that there cannot be a perfectly circular cross-section over the entire length of the water guide channel; thus, the claim term must be open to having other than circular cross-sections,” and “[i]n other words, it doesn't have to be continuously circular throughout the entire channel.... And as long as it had a circular cross-section at some point, then the claim limitation is met. I would also -- one other point that I don't think I brought out here is that if you look at the preferred embodiment and as depicted in figure 2 in the patent, the -- what is shown is not circular throughout the entire trajectory either,” has been considered, but is not persuasive.

Patent drawings are, by statute and regulation, simply intended to aid in understanding the “subject matter to be patented,” 35 U.S.C. § 113, or the “subject matter sought to be patented,” 37 C.F.R. § 1.81. As a result, the Federal Circuit has held that “[t]his court has repeatedly cautioned against overreliance on drawings that are neither expressly to scale nor linked to quantitative values in the specification.” *Krippelz v. Ford Motor Co.*, 667 F.3d 1261, 1268 (Fed. Cir. 2012).

Fig. 2 in the '243 patent:

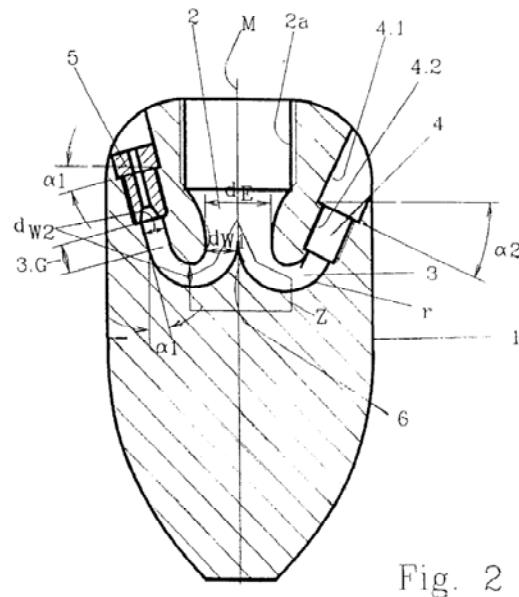


Fig. 2

does not clearly show that the water guide channels are “not circular throughout the entire trajectory” as KEG’s expert testified, especially given that patent drawings are neither to scale nor linked to quantitative values in the specification. But even if that were so, the claims, not the drawings, define the patented invention giving the patentee the “right to exclude.”

KEG’s argument based on the claims calling for “a circular cross-section” and consequently that means that there may be different cross-sections because “a” in patent parlance means “one or more,” is creative – but flatly wrong. In *KJC Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000), the claim-at-issue called for “a lower, continuous, inflatable chamber having an air-permeable, flexible upper wall portion.” (emphasis added) The district court construed “a lower, continuous, inflatable chamber” to mean: “A person of ordinary skill in the art of air bed engineering would read the phrase ‘continuous’ to mean without interruption and the word ‘a’ to mean one.” The district court, therefore, determined that “a . . . continuous . . . chamber” meant “one non-interrupted inflatable chamber.” The Federal Circuit disagreed. The Federal Circuit reasoned that “[t]his court has repeatedly emphasized that an indefinite article ‘a’ or ‘an’ in patent parlance carries the meaning of ‘one or more’ in open-ended claims containing the transitional phrase ‘comprising.’ * * * Unless the claim is specific as to the number of elements, the article ‘a’ receives a singular interpretation only in rare circumstances when the patentee evinces a clear intent

to so limit the article. * * * Under this conventional rule, the claim limitation ‘a,’ without more, requires at least one.” 223 F.3d at 1356

But Laimer correctly points out that “[t]he *Kinetic*’s court’s construction of ‘a’ to mean ‘one or more’ in the context of a number of chambers does not signify that ‘a’ must be construed in every instance as ‘one or more,’ particularly when the issue is not the number of objects but rather the type of cross-sectional shape.” Laimer’s Response [Dkt. No. 67] at 16.

The claim language is “water guide channels in the shape of channels having a circular cross-section.” The principle of whether “a” means “one” or “one or more” is plainly inapplicable based on the case law formulation of that principle.

KEG’s argument that one of ordinary skill in the art would not read “a circular cross section” to mean a “perfectly circular shape” because the process for making the tools does not result in a perfectly circular shape, is not well-taken or persuasive. The claim language does not require a “perfectly circular shape.”

KEG’s argument that “[a]dopting Defendants’ view of the claims * * * would effectively rewrite the claims as ‘water guide channels in the shape of circular cross section channels,’ which covers just the preferred embodiment of the invention” is noted, but that does not “rewrite” the claims. The claims expressly call for “water guide channels in the shape of channels having a circular cross-section.”

KEG cites *In re Marosi*, 710 F.2d 799, 802 (Fed. Cir. 1983) (“Claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their ‘broadest reasonable interpretation’”) (quoting *In re Okuzawa*, 537 F.2d 545, 548, (C.C.P.A. 1976)) (emphasis in original), but those cases are inapposite. Although claim language during prosecution before the PTO are given their broadest reasonable interpretation – because the claims may at that stage be amended – that is not the rule in infringement litigation.

With respect to KEG’s argument that other cross-sectional shapes have not been disavowed or disclaimed, this is not a case in which claim language is subject to debate on whether scope has been disavowed or disclaimed in the specification or prosecution history. The claim language expressly calls “water guide channels in the shape of channels having a circular cross-section.” The patentee could have chosen broader claim language, but did not.

KEG's argument that limiting the claims to a "perfectly circular cross section" would effectively eviscerate the patent "because there is no manufacturing technique that can make perfectly circular water guide channels from end to end using a casting or other process," is noted, but the claims are not being limited to a "perfectly circular cross section." The claims are simply being limited to what they say.

KEG argues, KEG's Response [Dkt. No. 66] at 20, that "'Defendants' insistence that the claims be limited to circular water-guide channels and 'not some other shape' is a not-so-veiled attempt to foreclose Plaintiffs' use of the doctrine of equivalents in Plaintiffs' Infringement Contentions." The master is recommending that the Court adopt Laimer's proposed construction in the Second Revised Joint Claim Construction Chart, namely "the water guide channels are circular in cross section." Whether that forecloses reliance on the doctrine of equivalents is an issue for another day.

6. Recommendation

The master recommends that the Court construe "water guide channels in the shape of channels having a circular cross-section" in claims 1 and 13 in the '243 patent to mean "the water guide channels are circular in cross section."

M. "wherein unsteady cross-sectional changes toward the discharge nozzle (5) are avoided" – '243 Patent, Claim 13

1. Disputed Term in Context of the Claim

Claim 13 with the disputed term emphasized, provides:

13. Hydrodynamic tool for cleaning of pipes and channels with a connection for a water hose as a pressurized water-entry inlet opening and pressurized water-discharge outlet openings on a side of the water connection, wherein the pressurized water-entry inlet opening is connected to the pressurized water-discharge outlet openings with water guide channels in the shape of channels having a circular cross-section, and wherein discharge nozzles are screwable into the pressurized water-discharge outlet openings, characterized in that

the water guide channels (3) exhibit a largest possible deflection radius (r), continuously connect to the pressurized water-entry inlet opening (2), and partially converge into one another, wherein at least two water guide channels (3) rest with an innermost point of their diameter (d_{w1}) at the center point (M) and with an outermost point of their diameter (d_{w1}) at an outer diameter (d_E) of the pressurized water-entry inlet opening (2),

wherein the direction of curvature of the deflection radius (r) is opposite to the pressurized water-entry inlet opening (2),

wherein the water guide channels (3) corresponding to the arrangement of the pressurized water-discharge outlet openings (4) are either merging with the end of their deflection radius (r) or with a linear region (3.G) and at an angle (α) over into the respective pressurized water-discharge outlet openings (4), wherein unsteady cross-sectional changes toward the discharge nozzle (5) are avoided.

2. The Parties Proposed Constructions

The parties' proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
'243, claim 13	wherein unsteady cross-sectional changes toward the discharge nozzle (5) are avoided	This term should be given its ordinary meaning to one of ordinary skill in the art, i.e., "in the vicinity of the discharge nozzles, the cross section of the water guide channels is generally continuous." Brief: p. 47	Defendants maintain that this phrase does not require construction.
Second Revised Joint Claim Construction Chart at 14			

3. The Parties' Arguments

In the JCC Statement, Laimer contended that the "wherein the water guide channels (3) * * *" limitation was indefinite and rendered the claim invalid under § 112(2). JCC Statement [Dkt. No. 62] at 36-37. With respect to the subject clause, Laimer's proposed construction was "unsteady cross sectional changes (in some unnamed part or in the water stream) toward the discharge channels is completely avoided." *Id.* However, in the Second Revised Joint Claim Construction Chart, Laimer contends that the phrase does not require construction.

KEG urges that the phrase "should be construed in a manner that is consistent with similar terms used in claim 1 of the '243 patent as discussed above (i.e., in the vicinity of the discharge nozzles, the cross section of the water guide channels is generally continuous)." KEG's Brief [Dkt. No. 64] at 47. KEG contends that Laimer's proposed construction in the JCC Statement "reads a limitation into the claim, which does not say 'completely avoided,' and " 'unnamed part' is incorrect; the claim term clearly refers to the water channels where they are directed toward the discharge nozzles." *Id.*

4. Discussion

Although Laimer urges that a construction is not necessary, it is believed that a jury would benefit from an explanation. KEG's proposed construction is consistent with the claim language, as well as the specification and drawings.

5. Recommendation

The master recommends that the Court construe "wherein unsteady cross-sectional changes toward the discharge nozzle (5) are avoided" in claim 13 of the '243 patent to mean "in the vicinity of the discharge nozzles, the cross section of the water guide channels is generally continuous."

N. "wherein a distance between a frontmost saddle point of an inner wall of a respective water guide channel and an opposite inner wall point of the water guide channel, disposed along an axially parallel straight line, is smaller than a thickness of a wall between the pressurized water-entry inlet opening and a respective pressurized water-discharge outlet opening" – '243 Patent, Claim 1

1. Disputed Term in Context of the Claim

Claim 1 of the '243 patent calls for (with the disputed phrase emphasized):

1. A hydrodynamic tool for cleaning of pipes and channels comprising

a tool frame having a front side and having a rear side;

a pressurized water-entry inlet opening disposed at the rear side of the tool frame and furnishing a connection for a water hose;

pressurized water-discharge outlet openings disposed at the rear side of the tool frame and furnishing a connection for discharge nozzles, wherein the discharge nozzles are screwable into the pressurized water-discharge outlet openings;

water guide channels in the shape of channels having a circular cross-section, wherein the pressurized water-entry inlet opening is connected to the pressurized water-discharge outlet openings through respective water guide channels;

wherein the water guide channels partially converge into one another, wherein at least two of the water guide channels rest with an innermost point of a rearwardly disposed diameter at a center point on an axis of the tool frame and with an outermost point of said diameter rests at an outer diameter at the front end of the pressurized water-entry inlet opening;

wherein a distance between a frontmost saddle point of an inner wall of a respective water guide channel and an opposite inner wall point of the water guide channel, disposed along an axially parallel straight line, is smaller than a thickness of a wall

between the pressurized water-entry inlet opening and a respective pressurized water-discharge outlet opening;

wherein the water guide channels, corresponding to the respective ones of the pressurized water-discharge outlet openings, are merging into the respective pressurized water-discharge outlet openings, wherein unsteady cross-sectional changes of the cross-section of the water guide channels in a direction toward the discharge nozzle are absent.

2. The Parties Proposed Constructions

The parties' proposed the following contested constructions:

Patent	Claim Term	KEG	Laimer
'243, claim 1	wherein a distance between a frontmost saddle point of an inner wall of a respective water guide channel and an opposite inner wall point of the water guide channel, disposed along an axially parallel straight line, is smaller than a thickness of a wall between the pressurized water-entry inlet opening and a respective pressurized water-discharge outlet opening	<p>"A width of the water guide channel in the forward-most position of the water guide channel, measured along a straight line parallel to the longitudinal axis of the nozzle body, is smaller than a distance between the corresponding wall of the pressurized water-entry inlet opening and the pressurized water-discharge outlet opening associated with that water guide channel, measured laterally with regard to the pressurized water-discharge outlet opening"</p> <p>Brief: p. 36</p> <p>The principal difference between the parties' proposed constructions is: where a wall thickness term is measured</p> <p>The Court's resolution of that difference is necessary because: Defendants do not actually construe the meaning of the term. The Plaintiffs' position is that the Court needs to determine whether the claim term limits where "a distance" and "a thickness" are measured, in the context of the claim language, so the fact finder can compare the</p>	<p>"there is a smaller distance between a frontmost saddle point of an inner wall of a water guide channel and an opposite wall point of the water guide channel, measured along a straight line parallel to the center longitudinal axis of the nozzle body, than the thickness of a wall between the inlet opening and a respective pressurized water-discharge outlet opening"</p> <p>Brief: pp. 38-40</p> <p>The principal difference between the parties' proposed construction is where the "distance" term is measured.</p> <p>The Court's resolution of that difference is necessary because the claim language is indefinite and therefore Defendants cannot determine what the patentee is entitled to exclude others from making, using, or selling</p>

Patent	Claim Term	KEG	Laimer
		Accused Instrumentalities to the claim language.	
Second Revised Joint Claim Construction Chart at 14-15			

3. The Parties' Arguments

Exhibit C-13 to KEG's Brief includes the following highlights:

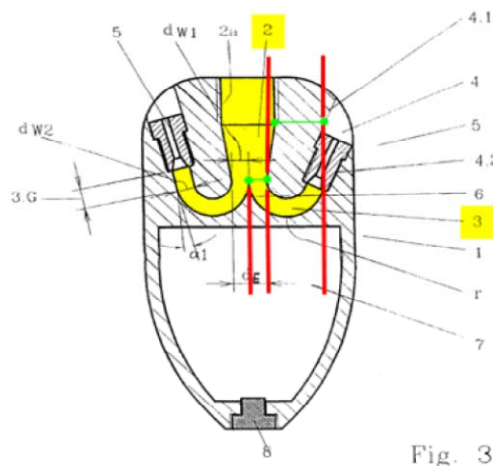


Fig. 3

KEG says that the disputed limitation “refers to the width of the upstream opening of a water guide channel in the vicinity of the apex as being smaller than at least one distance measured between the corresponding wall of the pressurized water-entry inlet opening and the pressurized water-discharge outlet opening associated with that water guide channel. The specification mirrors the claim language, with the addition of references numbers in the figures (FIG. 2, for example: channel (3), radius extending from the line (2a), outlet opening (4.1)).” KEG’s Brief [Dkt. No. 64] at 36-37.

KEG says that Laimer’s proposed construction “is almost consistent with the claim, but it does not make it clear that one measurement is taken along an axial direction at the frontmost saddle point.” *Id.* at 37.

Laimer’s Brief focuses on his argument that the claim is invalid as being indefinite under § 112(2). Laimer’s Brief [Dkt. No. 65] at 38-40. Laimer’s proposed construction in his brief was “there is a smaller distance between a frontmost saddle point of an inner wall of a water guide

channel and an opposite wall point of the water guide channel than the thickness of a wall between the inlet opening and a respective pressurized water-discharge outlet opening. *Id.* at 38-39.

4. Discussion

It is not readily apparent what, if any, meaningful distinction there is between the constructions proposed by the parties in the Second Revised Joint Claim Construction Chart. Laimer says that “[t]he principal difference between the parties’ proposed construction is where the ‘distance’ term is measured,” but that is not readily apparent from the proposed constructions.

In this instance, however, Laimer’s proposed construction more closely tracks the actual claim language, as well as the related description in the specification, namely “[a] distance between a frontmost saddle point of an inner wall of a respective water guide channel and an opposite inner wall point of the water guide channel, disposed along an axially parallel straight line, is smaller than a thickness of a wall between the pressurized water-entry inlet opening and a respective pressurized water-discharge outlet opening,” ‘243 patent, col. 3, lines 12-17, and “[t]he distance between the frontmost saddle point of the inner wall of a water guide channel 3 and an opposite wall point of the water guide channel 3 disposed along an axially parallel straight line is smaller than the thickness of the wall between the pressurized water-entry inlet opening 2 and a respective pressurized water-discharge outlet opening 4.” ‘243 patent, col. 8, lines 7-13.

5. Recommendation

The master recommends that the Court construe “wherein a distance between a frontmost saddle point of an inner wall of a respective water guide channel and an opposite inner wall point of the water guide channel, disposed along an axially parallel straight line, is smaller than a thickness of a wall between the pressurized water-entry inlet opening and a respective pressurized water-discharge outlet opening” in claim 1 in the ‘243 patent to mean “there is a smaller distance between a frontmost saddle point of an inner wall of a water guide channel and an opposite wall point of the water guide channel, measured along a straight line parallel to the center longitudinal axis of the nozzle body, than the thickness of a wall between the inlet opening and a respective pressurized water-discharge outlet opening.”

- O. “the water guide channels rest with an innermost point of a rearwardly disposed diameter at a center point on an axis of the tool frame and with an outermost point of said diameter rests at an outer diameter at the front end of the pressurized water-entry inlet opening” – ‘243 Patent, Claim 1**

1. The Parties Proposed Constructions

The parties’ have advised that no construction is necessary:

Patent	Claim Term	KEG	Laimer
‘243, claim 1	the water guide channels rest with an innermost point of a rearwardly disposed diameter at a center point on an axis of the tool frame and with an outermost point of said diameter rests at an outer diameter at the front end of the pressurized water-entry inlet opening;	The parties have agreed that this phrase does not require construction.	The parties have agreed that this phrase does not require construction.
Second Revised Joint Claim Construction Chart at 15-16			

2. Recommendation

In light of the parties’ agreement, no construction is necessary.

- P. “the water guide channels (3) exhibit a largest possible deflection radius (r), continuously connect to the pressurized water-entry inlet opening (2)” – ‘243 Patent, Claim 1**

1. The Parties Proposed Constructions

The parties’ have advised that no construction is necessary:

Patent	Claim Term	KEG	Laimer
‘243, claim 13	the water guide channels (3) exhibit a largest possible deflection radius (r), continuously connect to the pressurized water-entry inlet opening (2),	The parties have agreed that this phrase does not require construction.	The parties have agreed that this phrase does not require construction.

Patent	Claim Term	KEG	Laimer
Second Revised Joint Claim Construction Chart at 16			

2. Recommendation

In light of the parties' agreement, no construction is necessary.

Q. “wherein the pressurized water-entry inlet opening (2) in case a hose connection (2a) is larger than $2 \times d_{w1}$, narrows up to the diameter $2 \times d_{w1}$ preferably in a funnel shape” – ‘243 Patent, Claim 14

1. The Parties Proposed Constructions

The parties' have advised that no construction is necessary:

Patent	Claim Term	KEG	Laimer
'243, claim 14	wherein the pressurized water-entry inlet opening (2) in case a hose connection (2a) is larger than $2 \times d_{w1}$, narrows up to the diameter $2 \times d_{w1}$ preferably in a funnel shape	The parties have agreed that this phrase does not require construction.	The parties have agreed that this phrase does not require construction.
Second Revised Joint Claim Construction Chart at 16			

2. Recommendation

In light of the parties' agreement, no construction is necessary.

VIII. Conclusion

This is the Special Master's Report and Recommendation on the issues referred to the master by the Court for resolution. Under Rule 53(f)(2), Fed. R. Civ. P.:

(2) Time To Object or Move to Adopt or Modify. A party may file objections to – or a motion to adopt or modify – the master's order, report, or recommendations no later than 21 days after a copy is served, unless the court sets a different time.

(emphasis added). Accordingly, the parties are encouraged to determine whether an order from the Court modifies the foregoing. Also, the parties are encouraged to review Rule 53(f)(3), (4), Fed. R. Civ. P., relating to the Court's *de novo* review of findings of fact and conclusions of law.

Although the parties must independently determine the applicable time period for filing objections, or motions to adopt or modify, the parties may, of course, seek further comment or clarification through motions directed to the master or the Court, as the Court may direct.

SIGNED this 11th day of January, 2013, in San Antonio, Texas.

/s/ Gale R. Peterson

Gale R. Peterson, Special Master

CERTIFICATE OF SERVICE

The undersigned has been appointed master in this cause pursuant to the Court's Order dated May 14, 2012 [Dkt. No. 81].

I hereby certify that on the 11th day of January, 2013, a true and correct copy of the foregoing document was electronically filed with the Clerk of the Court using CM/ECF and sent via Federal Express to the parties at the following addresses:

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and delivered an original and one copy via Federal Express to:

The Honorable Julie E. Carnes
Chief Judge
United States District Court for the Northern District of Georgia
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75 Spring Street, S.W.
Atlanta, GA 30303-3361

/s/ Gale R. Peterson

Gale R. Peterson, Special Master